

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: May 20, 2002, 09:35:01 ; Search time 29.97 Seconds
(without alignments)
103.773 Million cell updates/sec

Title: US-09-772-607A-2
Perfect score: 144
Sequence: 1 HAEGFTSDVSYLGGQAAKEFIAMLVK 28

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Maximum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A.Geneseq_032802.*

1:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1980.DAT.*
2:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT.*
3:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1982.DAT.*
4:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1983.DAT.*
5:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1984.DAT.*
6:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1985.DAT.*
7:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1986.DAT.*
8:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1987.DAT.*
9:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1988.DAT.*
10:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1989.DAT.*
11:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1990.DAT.*
12:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1991.DAT.*
13:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1992.DAT.*
14:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1993.DAT.*
15:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1994.DAT.*
16:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1995.DAT.*
17:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1996.DAT.*
18:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1997.DAT.*
19:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1998.DAT.*
20:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1999.DAT.*
21:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA2000.DAT.*
22:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	144	100.0	28	15	AAK45437
2	144	100.0	28	15	AAK63249
3	144	100.0	28	17	AAW16669
4	144	100.0	28	17	AAW02644
5	144	100.0	28	17	AAK98950
6	144	100.0	28	20	AAW93527
7	144	100.0	28	21	AAK07295
8	144	100.0	28	21	AAW78852
9	144	100.0	28	22	AAE09258
10	144	100.0	28	22	AAW63270
11	144	100.0	28	22	AAW63273

12	144	100.0	29	13	AAK24524
13	144	100.0	29	15	AAK45436
14	144	100.0	29	15	AAK63248
15	144	100.0	29	16	AAK69075
16	144	100.0	29	17	AAK98964
17	144	100.0	29	19	AAW63181
18	144	100.0	29	19	AAW50904
19	144	100.0	29	20	AAW34197
20	144	100.0	29	20	AAV18038
21	144	100.0	29	21	AAV18038
22	144	100.0	29	21	AAV53279
23	144	100.0	29	21	AAV78951
24	144	100.0	29	22	AAE09259
25	144	100.0	29	22	AAW63274
26	144	100.0	30	15	AAK45435
27	144	100.0	30	15	AAK63247
28	144	100.0	30	16	AAK69063
29	144	100.0	30	16	AAK79809
30	144	100.0	30	16	AAK80548
31	144	100.0	30	17	AAK98956
32	144	100.0	30	17	AAK98975
33	144	100.0	30	17	AAK98975
34	144	100.0	30	18	AAW16383
35	144	100.0	30	19	AAW63288
36	144	100.0	30	19	AAW63182
37	144	100.0	30	19	AAW50906
38	144	100.0	30	20	AAK80307
39	144	100.0	30	20	AAK80308
40	144	100.0	30	20	AAW80316
41	144	100.0	30	20	AAW42935
42	144	100.0	30	20	AAW27374
43	144	100.0	30	20	AAV39773
44	144	100.0	30	20	AAK34198
45	144	100.0	30	20	AAV31503

ALIGNMENTS

RESULT	1	
ID	AAK45437	standard; protein; 28 AA.
XX		
AC	AAK45437:	
XX		
DT	27-JUN-1994	(first entry)
XX		
DE	Insulintropin derivative.	
XX		
KW	Insulintropic; activity; enhancing insulin activity; treatment;	
KW	Type II diabetes.	
XX		
OS	Synthetic.	
XX		
PN	W09325579-A.	
XX		
PD	23-DEC-1993.	
XX		
PF	14-APR-1993;	93WO-US03388.
XX		
PR	15-JUN-1992;	92US-0899073.
XX		
PA	(PFIZ) PFIZER INC.	
XX		
PI	Andrews GC, Daumy GO, Francoeur ML, Larson ER;	
XX		
DR	WPI; 1994-007457/01.	
XX		
PT	New derivs. of glucagon-like peptide 1 and insulintropin - used for	
PT	enhancing insulin action in a mammal, partic. by iontophoretic admin.	
XX		
PS	Claim 3; Page 20; 32pp; English.	
XX		

AAW02644;

DT 24-JAN-1997 (first entry)
 XX
 DE Glucagon-like peptide-1 residues 7-34.
 XX
 KW GLP-1 (7-34); thixotropic; insulinotropic; diabetes; treatment;
 KW phenol; alcohol; aromatic; gel; protracted release.
 XX
 OS Synthetic.
 XX
 PN WO9620005-A1.
 XX
 PD 04-JUL-1996.
 XX
 PF 21-DEC-1995; 95WO-DK00516.
 XX
 PR 23-DEC-1994; 94DK-0001478.
 XX
 PA (NOVO) NOVO-NORDISK AS.
 XX
 PI Jensen E, Jorgensen KH;
 XX
 DR WPI: 1996-321644/32.
 XX
 XX New compns. contg. glucagon-like peptide-1 - comprising gels for
 PT the protracted release of GLP-1 in the treatment of diabetes
 PT mellitus.
 XX
 PS Disclosure: Page 3; 16pp; English.
 XX
 CC The present sequence is that of residues 7-34 of glucagon-like peptide-1
 CC (GLP-1 (7-34)). Compns. contg. a GLP-1 cpd. and a phenolic and/or an
 CC alcoholic aromatic cpd. result in a thixotropic gel showing a protracted
 CC release of the active GLP-1 cpd.. The compns. can be used as
 CC insulinotropic agents in the treatment of diabetes. In partic. GLP-1
 CC (7-37) is used in the examples of the invention (sequence not given).
 XX
 SQ Sequence 28 AA:

Query Match 100.0%; Score 144; DB 17; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVK 28
 DB 1 haegttsdvssylegqaakefiawlvk 28

RESULT 5
 AAR98950
 ID AAR98950 standard: peptide; 28 AA.
 XX
 AC AAR98950;
 XX
 XX 15-JAN-1997 (first entry)
 DT
 XX
 DE Target peptide (GLP1(7-34)) used in fusion protein construct.
 XX
 KW Fusion protein construct; isolation; purification;
 KW growth hormone releasing factor; glucagon-like peptide 1,
 KW parathyroid hormone; inclusion body; carbonic anhydrase.
 XX
 OS Synthetic.
 XX
 PN WO9617942-A1.
 XX
 PD 13-JUN-1996.
 XX
 PF 07-DEC-1995; 95WO-US15800.
 XX
 PR 07-DEC-1994; 94US-0350530.
 XX
 PA (BION-) BIONEERASKA INC.

XX
 PI De LA MOTTE RS, Henriksen DB, Holmquist B, Manning SD;
 PI Partridge BE, Stout JS, Wagner FW;
 XX
 DR WPI: 1996-287186/29.
 XX
 PT Isolation and purificn of peptide(s) from fusion protein constructs
 PT - which include a carbonic anhydrase and a variable fused
 PT polypeptide
 XX
 PS Claim 18; Page 47; 67pp; English.
 XX
 CC A new method for the isolation and/or purification of a recombinant
 CC peptide employs a fusion protein construct (FPC) comprising a
 CC carbonic anhydrase and a variable fused polypeptide containing a
 CC target peptide. The method comprises precipitating either the FPC or
 CC a fragment of the FPC including the carbonic anhydrase. An
 CC alternative method of producing the peptide comprises expressing the
 CC FPC as part of an inclusion body. The target peptides of the FPC are
 CC derived from growth hormone releasing factor (GRF), glucagon-like
 CC peptide 1 (GLP1) or parathyroid hormone (PTH). This sequence
 CC corresponds to amino acids 7-34 of GLP1.
 XX
 SQ Sequence 28 AA:

Query Match 100.0%; Score 144; DB 17; Length 28;
 Best Local Similarity 100.0%; Pred. No. 1.7e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAVLVK 28
 DB 1 haegttsdvssylegqaakefiawlvk 28

RESULT 6
 AAW93527
 ID AAW93527 standard: peptide; 28 AA.
 XX
 AC AAW93527;
 XX
 DT 15-JUN-1999 (first entry)
 DT
 XX
 DE Peptide used in treatment of diabetes mellitus and obesity.
 XX
 KW Diabetes mellitus; obesity; therapy; treatment; hormone; CAMP; CGMP;
 KW cyclic adenosine monophosphate; cyclic nucleotide degradation;
 KW anti-obesity; non-insulin-dependent; mature onset; pancreatic disease;
 KW secondary hyperglycemia; pancreatitis; pancreasectomy; pheochromocytoma;
 KW hemochromatosis; endocrine disease; Cushing's syndrome; iatrogenic;
 KW hyperthyreosis; benzothiadiazine saluretic; diazoxide; glucocorticoid;
 KW pathological glucose tolerance; hyperglycemia; dyslipoproteinemia;
 KW hyperlipoproteinemia; hypotension.
 XX
 OS Synthetic.
 XX
 PN WO9914239-A1.
 XX
 PD 25-MAR-1999.
 XX
 PF 11-SEP-1998; 98WO-EP05804.
 XX
 PR 11-MAR-1998; 98DE-1010515.
 PR 12-SEP-1997; 97DE-1040081.
 PR 23-DEC-1997; 97DE-1057739.
 XX
 PA (FORS/) FORSMANN W G.
 XX
 PI Adermann K, Forssmann WG, Meyer M, Richter R;
 XX
 DR WPI: 1999-244026/20.
 XX

Composition containing stimulators of cyclic nucleotide monophosphate

Claim 30: Page 18; 38pp; German.

This invention describes a composition containing at least two of the components (a) hormone that stimulates production of cyclic adenosine monophosphate (cAMP) (b) inhibitor of cyclic nucleotide degradation and (c) hormone that stimulates production of cyclic guanosine monophosphate (cGMP). This composition has antidiabetic, hypoglycaemic, and anti-obesity activity. The product described in the invention can be used for treatment of (i) diabetes mellitus (non-)insulin dependent or mature onset diabetes, (ii) secondary hyperglycemia associated with pancreatic disease (chronic pancreatitis, pancreasectomy or hemochromatosis) or endocrine disease (acromegaly, Cushing's syndrome, pheochromocytoma or hyperthyroidism), (iii) iatrogenic hyperglycemia (e.g. caused by benzothiadiazine diuretics, diazoxide or glucocorticoids), (iv) pathological glucose tolerance, (v) hyperglycemia, (vi) dyslipoproteinemia, (vii) obesity, (viii) hyperlipoproteinemia and/or hypotension.

Sequence 28 AA:

Query Match 100.0%; Score 144; DB 20; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSYLEGGAKEFIAMLVK 28
1 haegttsdvssyleggaakefiawlvk 28

RESULT 7
AAB07295
ID AAB07295 standard; peptide: 28 AA.
AC AAB07295;
XX
XX 17-JAN-2001 (first entry)
DE Modified Glucagon Like Peptide (GLP) # 5.
XX
XX Peptide amidation: C-terminal alpha-carboxamide; GLP; clostiripain;
KW amidative cleavage; clostiridopeptidase B; glucagon like peptide.
XX
XX Unidentified.
OS
XX WO200028067-A1.
PN
XX 18-MAY-2000.
PD
XX 05-NOV-1999; 99WO-0526060.
PF
XX 06-NOV-1998; 98US-0107311.
PR 16-DEC-1998; 98US-0212663.
XX
XX (BION-) BIONEBRASKA INC.
PA
XX Dormady D, Stout JS, Strydom DJ, Holmquist B, Wagner FW;
PI WPI: 2000-376575/32.
DR
XX
XX Preparation of peptide with C-terminal alpha-carboxamide residue, e.g.
PT growth hormone releasing factors comprising treating substrate with
PT ammonia in presence of clostiripain
XX
XX Example 1; Page 16; 48pp; English.
PS
XX The present sequence is a modified glucagon like peptide (GLP) fragment.
CC This sequence is composed of residues 7 to 34 of GLP, and was produced
CC by attempted clostiripain catalysed amidation of another modified GLP
CC fragment (AAB07291) at pH 7.9. Hydrolysis at Lys34 occurred to produce the

present sequence. The expected product would have had a C-terminal alpha-carboxamide residue. The peptide of AAB07291 was treated with an ammonia reagent and clostiripain (also known as clostiridopeptidase B). Clostiripain is an extracellular thiol endopeptidase from Clostridia. Clostiripain cleaves arginine containing peptides amidatively at an Arg-Xaa peptide bond.

Sequence 28 AA:

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSYLEGGAKEFIAMLVK 28
1 haegttsdvssyleggaakefiawlvk 28

RESULT 8
AAV78952
ID AAV78952 standard; peptide: 28 AA.
AC AAV78952;
XX
XX 05-JUN-2000 (first entry)
DT
XX
XX Glucagon-like peptide-1 fragment GLP-1 (7-34).
DE
XX
XX Glucagon-like peptide-1; GLP-1; insulin producing cell; insulin; amylase;
KW diabetes mellitus type 1; human; livestock; pet.
XX
XX Homo sapiens.
OS
XX WO200009666-A2.
EN
XX 24-FEB-2000.
PD
XX 10-AUG-1999; 99WO-US18099.
PF
XX 10-AUG-1998; 98US-0095917.
PR
XX
XX (USSH) US DEPT HEALTH & HUMAN SERVICES.
PA
XX Egan J, Perfetti R, Passaniti A, Greig N, Holloway H;
PI WPI: 2000-205999/18.
DR
XX
XX Differentiation of non-insulin producing cells into insulin-producing
PT cells by glucagon-like peptide-1 or extendin-4, used to treat diabetes
PT mellitus
XX
XX
XX Disclosure; Page 16; 119pp; English.
PS
XX This sequence represents a glucagon-like peptide-1 (GLP-1) fragment.
CC GLP-1 is a hormone normally secreted by neuroendocrine cells of the gut,
CC in response to food. GLP-1 fragments or Extendin-4 growth factor
CC fragments can be used in the production of a population of
CC insulin-producing cells from a population of non-insulin producing cells.
CC The methods may also be used to promote pancreatic amylase producing
CC cells to produce both insulin and amylase. The methods are used to treat
CC diabetes mellitus (type 1) in humans, domesticated animals, livestock and
CC pets.
CC
XX
XX Sequence 28 AA:

Query Match 100.0%; Score 144; DB 21; Length 28;
Best Local Similarity 100.0%; Pred. No. 1.7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 HAEGFTSDVSYLEGGAKEFIAMLVK 28
1 haegttsdvssyleggaakefiawlvk 28

Db 1 haegtfsdvssyllegqaakefiawlk 28

RESULT 9

AAE09258
ID AAE09258 standard; peptide; 28 AA.

AC AAE09258;

DT 15-NOV-2001 (first entry)

DE Human glucagon-like peptide-1 related molecule (GLP)-1 derivative #5.

KW Human: glucagon-like peptide-1 related molecule; GLP; GLP crystal;

KM manufacturing process; pharmaceutical formulation; therapy; diabetes;

KW obesity.

OS Homo sapiens.

OS Synthetic.

PN US2001014666-A1.

PD 16-AUG-2001.

PF 11-DEC-1998; 98US-0209799.

PR 11-DEC-1998; 98US-0209799.

PA (HERM/) HERMELING R N.

PA (HOFF/) HOFFMANN J A.

PA (NARA/) NARASIMHAN C.

PI Hermeling RN, Hoffmann JA, Narasimhan C;

DR WPI: 2001-529113/58.

XX glucagon-like peptide-1 crystals for treating diabetes are prepared

PT from mother liquor containing glucagon-like peptide-1 related molecules

PT dissolved in buffered solution and alcohol

CC Disclosure; Page 11; 17pp; English.

CC The present sequence is a human glucagon-like peptide-1 related molecule

CC (GLP)-1 derivative. The single tetragonal flat rod-shaped or plate-like

CC crystals of a GLP are prepared from a crystallisation solution containing

CC a GLP, a buffering agent, an alcohol or a mono or disaccharide and

CC optionally ammonium sulphate or zinc. The GLP crystals are used in

CC manufacturing process, in pharmaceutical formulations for treating

CC diabetes, obesity or related conditions in mammals.

XX Sequence 28 AA;

Query Match 100.0%; Score 144; DB 22; Length 28;

Best Local Similarity 100.0%; Pred. No. 1.7e-14;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

DB 1 haegtfsdvssyllegqaakefiawlk 28

RESULT 10

AAAG63270

ID AAG63270 standard; protein; 28 AA.

AC AAG63270;

DT 01-OCT-2001 (first entry)

DE Amino acid sequence of glucagon-like peptide 1 (GLP-1) analogue.

XX Glucagon-like peptide 1; GLP-1; soluble GLP-1.

XX Synthetic.

OS Key Location/Qualifiers

PH Misc-difference 28 /note= "this residue is Lys-COOH or Lys-Gly-COOH"

FT WO200155213-A2.

PN 02-AUG-2001.

PD 16-JAN-2001; 2001WO-US00010.

PF 27-JAN-2000; 2000US-0178438.

PR 09-AUG-2000; 2000US-0224058.

XX (ELIL) LILLY & CO ELI.

XX Prouty WFJ, Rineilla JVJ;

XX WPI: 2001-476192/51.

XX Preparing a glucagon-like peptide 1 compound soluble in aqueous

XX solution at pH 7.4, comprises dissolving the insoluble form in aqueous

XX base or acid and neutralizing the solution

XX Disclosure; Page 12; 49pp; English.

XX The present sequence represents a glucagon-like peptide 1 (GLP-1)

XX analogue. The specification describes a method for preparing a GLP-1

XX compound that is soluble in aqueous form at pH 7.4 from a GLP-1

XX compound that is insoluble in aqueous form at pH 7.4. The method

XX comprises dissolving the insoluble compound in aqueous base or acid;

XX neutralizing the GLP-1 solution to a pH at which no amino acid

XX racemisation of the GLP-1 compound occurs; and isolating GLP-1 from

XX CC of a GLP-1 compound. The method is used to prepare a soluble form

XX of a GLP-1 compound. The soluble form of GLP-1 is physiologically active.

XX Sequence 28 AA;

Query Match 100.0%; Score 144; DB 22; Length 28;

Best Local Similarity 100.0%; Pred. No. 1.7e-14;

Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

DB 1 haegtfsdvssyllegqaakefiawlk 28

RESULT 11

AAAG63273

ID AAG63273 standard; protein; 28 AA.

AC AAG63273;

DT 01-OCT-2001 (first entry)

DE An insoluble glucagon-like peptide 1 (GLP-1) compound.

XX Glucagon-like peptide 1; GLP-1; soluble GLP-1.

OS Synthetic.

PN WO200155213-A2.

PD 02-AUG-2001.

PF 16-JAN-2001; 2001WO-US00010.

PR 27-JAN-2000; 2000US-0178438.

XX 09-AUG-2000; 2000US-0224058.

	Query Match	Score 144;	DB 22;	Length 28;
	Best Local Similarity	100.0%;	Pred. No. 1,7e-14;	
Matches	28;	Conservative	0;	Mismatches 0;
OY	1 HAECTFTSDVSYLSECAAKETIAWLVK	28		
db	1 haegtftsdvssylsegqaaketafwlvk	28		

RESULT 12
AAR24524
ID AAR24524 standard; peptide; 29 AA.

AC AAR24524 ;

DT 02-DEC-1992 (first entry)

DE GLP-1 derivative

KW Maturity onset diabetes mellitus; MODM; pathogenesis.

Homo sapiens.

PN US5118666-A.

02-JUN-1992.
PD

05-MAY-1986; 86US-0859928.

05-MAY-1986; 86US-0859928.

01-JUN-1990; 90US-0532111

AA
PA (GEHO) GEN HOSPITAL CORP

AA PI Habener JF:

XX
DR WPT: 1992-208235/25.

XX
PT New glucagon-like peptide 1 derivatives - have insulinotropic

PT activity and are used to treat diabetes and

PS Claim 1; page 20 and fig. 1; 10pp; English.

CC The sequence given is derived from glucagon like peptide 1 (GLP-1) (27).
CC and has a higher insulinotropic activity than GLP-1 (1-36) and GLP-1

(1-37). The peptide may be modified to a acid anion or carboxylic acid salt or lower alkyl ester and amide (lower (di)alkyl amide)

CC derivative. These modified derivatives have the same insulinotropic
CC activity as the original GIP-1 derivative. These peptides are used
CC in the treatment of maturity onset diabetes mellitus (MODM). They
CC may also be used in the study of MODM pathogenesis. Dosages can be
CC administered intravenously, intramuscularly or subcutaneously.

Sequence	29 AA
sq	

Query Match	100.0%;	Score 144;	DB 13;	Length 29;
Best Local Similarity	100.0%;	Pred. No. 1.8e-14;		
Matches	28;	Conservative	0;	Mismatches 0;
			Indels	0;
			Gaps	0;

```
QY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
    |||||
Db 1 haegftsdvssylegqaakefiawlvk 28
```

RESULT 13
AAR45436
ID AAR45436 standard; protein; 29 AA

AC AAR454367

DT 27-JUN-1994 (first entry)

DE Insulintropin derivative.

Insulintropic; activity; enhancing insulin activity; treatment,

XX		00000000
KW	11	00000000
YP	11	00000000

synthetic.
XX
05

MO3320013 A-
PN
XX

23-DEC-1993
PD
XX

14-APR-1993, 2200 00000000
PE XX

PR 15-JUN-1992; 9205-00350100
XX

PELZ (PELZ) PELZER INC-
PA
XX

PI Andrews GC, Daully
 YV

DR WPI; 1994-00/451/01
YY

New derivs. of glucagon-like peptide 1 and insulinotropic polypeptide in action in a mammalian partic. by iontophoretic admin.

XX
XX
01:01:30: 32nd: English

XX The sequence is that of a derivative of insulinotropin which
CC has insulinotropic activity and is useful for enhancing insulin
CC action in a mammal, partic. for treating Type II diabetes
CC (claimed). It is partic. suited for delivery to a mammal by
CC ionophoresis.

Sequence	29 AA
SQ	

Query Match	Score 144;	DB 15;	Length 29;
100.0%	100.0%	100.0%	100.0%

```

best local alignment of
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

1 HAEGTFTSDVSSYLEGQAAKEFIAWLK 28
OY

Db 1 haettftsdvssylæggaakefiawlk 28

RESULT 14

ID AAR63248 standard; peptide; 29 AA.

```

XX AC AAR63248;
XX DT 02-MAY-1995 (first entry)
XX DE Insulinotropin (GLP-1(7-35)) for use in treating NIDDM.
XX KM Insulinotropic activity: GLP-1; glucagon-like protein 1; NIDDM;
XX non-insulin dependent diabetes mellitus; Insulinotropin; truncated.
XX OS Synthetic.
XX PN EP619322-A.
XX PD 12-OCT-1994.
XX PF 10-FEB-1994; 94EP-0300981.
XX PR 07-APR-1993; 93US-0044133.
XX PA (PFIZ ) PFIZER INC.
XX PA (PFIZ ) PFIZER CORP.
XX PI Danley DE, Gelfand RA, Geoghegan KF, Kim Y, Lambert WJ;
XX PI Qi H, Oih, Hong Q, Yesock K;
XX DR WPI: 1994-311774/39.
XX PT Treatment of non-insulin dependent diabetes mellitus - using a
XX PT glucagon-like peptide 1 or deriv. with prolonged action for
XX PT sustained glycaemic control
XX PS Claim 2; Page 46; 70pp; English.
XX CC This peptide is GLP-1(7-35) [GLP = glucagon-like peptide], a truncated
XX CC deriv. of GLP-1. GLP-1 and its deriv.s are useful in the treatment of
XX CC Non-Insulin Dependent diabetes Mellitus (NIDDM). During processing in
XX CC the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
XX CC acid peptide having amino acids 7-37 of GLP-1, alternatively referred
XX CC to as Insulinotropin. GLP-1(7-37) has insulinotropic activity, i.e. it
XX CC is able to stimulate, or cause to be stimulated, the synthesis of the
XX CC hormone insulin. Other derivs. of GLP-1 are shown in AAR63246-51. It
XX CC has been discovered that prolonged plasma elevations of GLP-1, and
XX CC related polypeptides, are necessary during the meal and beyond to
XX CC achieve sustained glycaemic control in patients with NIDDM. The invention
XX CC provides a compsn. that has prolonged action after each administration.
XX SQ Sequence 29 AA;

Query Match 100.0%; Score 144; DB 15; Length 29;
Best Local Similarity 100.0%; Pred. No. 1.8e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSVYLEGGAKEFIAMLVK 28
   |||||
Db 1 haegftsdvsvyleggaakefiawlvk 28

RESULT 15
AAR69075
ID AAR69075 standard; peptide; 29 AA.
XX AAR69075;
XX 23-AUG-1995 (first entry)
XX DE Glycogen Like Peptide 1 (7-34) + G-R-NH2, G-R-G or G-R-G-NH2.
XX KW Glycogen Like Peptide; endopeptidase; transpeptidation; trypsin;
XX cleavage.
XX OS Synthetic.

```

```

XX FH Key Location/Qualifiers
XX FT Misc-difference 29
XX FT /Label= G-R-NH2; G-R-G, OR G-R-G-NH2
XX PN WO9503405-A.
XX PD 02-FEB-1995.
XX PF 19-JUL-1994; 94WO-US08125.
XX PR 20-JUL-1993; 93US-0095162.
XX PA (BION-) BIONEERASKA INC.
XX PI Henriksen D, Manning S, Partridge B, Stout J, Wagner FW;
XX DR WPI: 1995-075233/10.
XX PT Transpeptidation of recombinant polypeptides - using
XX PT endopeptidase such as trypsin or thrombin to modify C-terminal
XX PT residue.
XX PS Claim 22; Page 58; 69pp; English.
XX CC The native or naturally occurring sequence of growth hormone
XX CC releasing factor is AAR69073. A pharmaceutical compsn. of
XX CC GRF(1-44)-NH2 produced by the method of the invention is claimed.
XX CC AAR69075 does not seem to be referred to the patent application apart
XX CC from in the claims where a polypeptide with this sequence produced
XX CC by the method of the invention is claimed. The peptide appears to
XX CC Glycogen Like Peptide 1 residues 7-34 plus a carboxy terminal
XX CC group for trypsin cleavage.
XX SQ Sequence 29 AA;

Query Match 100.0%; Score 144; DB 16; Length 29;
Best Local Similarity 100.0%; Pred. No. 1.8e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSVYLEGGAKEFIAMLVK 28
   |||||
Db 1 haegftsdvsvyleggaakefiawlvk 28

```

Search completed: May 20, 2002, 09:35:59
Job time: 58 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 20, 2002, 09:35:01 ; Search time 13.06 Seconds
(without alignments)
52.367 Million cell updates/sec

Title: US-09-772-607A-2

Perfect score: 144
Sequence: 1 HAEGFTSDVSSYLEGQAKKEFLAMLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

Issued Patents_AA:*
1: /cgn2_6/prodata/2/1aa/5A_COMB.pep:*
2: /cgn2_6/prodata/2/1aa/5B_COMB.pep:*
3: /cgn2_6/prodata/2/1aa/6A_COMB.pep:*
4: /cgn2_6/prodata/2/1aa/6B_COMB.pep:*
5: /cgn2_6/prodata/2/1aa/PCTUS_COMB.pep:*
6: /cgn2_6/prodata/2/1aa/backfilest1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	144	100.0	28	1	US-08-095-162-4
2	144	100.0	28	1	US-08-470-220A-4
3	144	100.0	28	3	US-08-967-374-4
4	144	100.0	28	4	US-08-472-349-5
5	144	100.0	28	5	PCT-US95-15800-21
6	144	100.0	29	1	US-08-095-162-18
7	144	100.0	29	1	US-08-470-220A-18
8	144	100.0	29	3	US-08-967-374-18
9	144	100.0	29	4	US-08-472-349-4
10	144	100.0	30	1	US-08-066-480-6
11	144	100.0	30	1	US-08-095-162-1
12	144	100.0	30	1	US-08-470-220A-1
13	144	100.0	30	2	US-08-927-227-1
14	144	100.0	30	3	US-08-967-374-1
15	144	100.0	30	4	US-09-348-136-1
16	144	100.0	30	4	US-08-961-405A-5
17	144	100.0	30	4	US-08-915-918A-5
18	144	100.0	30	4	US-09-302-596-4
19	144	100.0	30	4	US-08-472-349-3
20	144	100.0	30	4	US-09-333-415-4
21	144	100.0	30	4	US-09-585-181A-4
22	144	100.0	30	5	PCT-US95-15800-27
23	144	100.0	31	1	US-09-025-951-1
24	144	100.0	31	1	US-08-095-162-2
25	144	100.0	31	1	US-08-095-162-3
26	144	100.0	31	1	US-08-295-913A-1
27	144	100.0	31	1	US-08-470-220A-2

28	144	100.0	31	1	US-08-470-220A-3	Sequence 3, App11
29	144	100.0	31	2	US-08-807-263-3	Sequence 3, App11
30	144	100.0	31	3	US-08-967-374-2	Sequence 2, App11
31	144	100.0	31	3	US-08-967-374-3	Sequence 3, App11
32	144	100.0	31	4	US-08-961-405A-1	Sequence 1, App11
33	144	100.0	31	4	US-09-258-750-3	Sequence 3, App11
34	144	100.0	31	4	US-08-915-918A-1	Sequence 1, App11
35	144	100.0	31	4	US-09-302-596-3	Sequence 3, App11
36	144	100.0	31	4	US-08-472-349-2	Sequence 2, App11
37	144	100.0	31	4	US-09-623-618B-2	Sequence 2, App11
38	144	100.0	31	4	US-09-623-618B-17	Sequence 17, App11
39	144	100.0	31	4	US-09-623-618B-27	Sequence 27, App11
40	144	100.0	31	4	US-09-623-618B-28	Sequence 28, App11
41	144	100.0	31	4	US-09-333-415-3	Sequence 3, App11
42	144	100.0	31	5	PCT-US95-15800-28	Sequence 28, App11
43	144	100.0	31	5	PCT-US95-15800-30	Sequence 30, App11
44	144	100.0	34	1	US-08-095-162-6	Sequence 6, App11
45	144	100.0	34	1	US-08-470-220A-6	Sequence 6, App11

ALIGNMENTS

```
RESULT 1
; Sequence 4, Application US/08095162
; Patent No. 5512459
; GENERAL INFORMATION:
; APPLICANT: Wagoner, Fred W.
; APPLICANT: Stout, Jay
; APPLICANT: Henriksen, Dennis
; APPLICANT: Partidge, Bruce
; APPLICANT: Manning, Shane
; TITLE OF INVENTION: Enzymatic Method for Modification of
; TITLE OF INVENTION: Recombinant Polypeptides
; NUMBER OF SEQUENCES: 26
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Merchant & Gould
; STREET: 3100 No. 5512459west Center
; CITY: Minneapolis
; STATE: MN
; COUNTRY: USA
; ZIP: 55402
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/095,162
; FILING DATE: 20-JUL-1993
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nelson, Albin J.
; REGISTRATION NUMBER: 28,659
; REFERENCE/DOCKET NUMBER: 8648.32-US01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 612-332-5300
; TELEFAX: 612-332-9081
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 28 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; IMMEDIATE SOURCE:
; CLONE: GLP1 (7-34)
; US-08-095-162-4

Query Match 100.0%; Score 144; DB 1; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

QY 1 HAEFTSDVSSYLEGAAKEFIAWLK 28
 DB 1 HAEFTSDVSSYLEGAAKEFIAWLK 28

RESULT 2
 US-08-470-220A-4
 ; Sequence 4, Application US/08470220A
 ; Patent No. 5707826
 ; GENERAL INFORMATION:
 ; APPLICANT: Wagner, Fred W.
 ; APPLICANT: Stout, Jay
 ; APPLICANT: Henriksen, Dennis
 ; APPLICANT: Partridge, Bruce
 ; APPLICANT: Manning, Shane
 ; TITLE OF INVENTION: Enzymatic Method for Modification of
 ; RECOMBINANT POLYPEPTIDES
 ; NUMBER OF SEQUENCES: 26
 ; CORRESPONDENCE ADDRESS:
 ; ADDRESSEE: Merchant & Gould
 ; STREET: 3100 No. 5707826west Center
 ; CITY: Minneapolis
 ; STATE: MN
 ; COUNTRY: USA
 ; ZIP: 55402
 ; COMPUTER READABLE FORM:
 ; MEDIUM TYPE: Floppy disk
 ; COMPUTER: IBM PC compatible
 ; OPERATING SYSTEM: PC-DOS/MS-DOS
 ; SOFTWARE: Patentin Release #1.0, Version #1.25
 ; CURRENT APPLICATION DATA:
 ; APPLICATION NUMBER: US/08/470,220A
 ; FILING DATE: 06-JUN-1995
 ; CLASSIFICATION: 435
 ; PRIOR APPLICATION DATA:
 ; APPLICATION NUMBER: US 08/095,162
 ; FILING DATE: 20-JUL-1993
 ; ATTORNEY/AGENT INFORMATION:
 ; NAME: Nelson, Albin J.
 ; REGISTRATION NUMBER: 28,659
 ; REFERENCE/DOCKET NUMBER: 8648.32-US01
 ; TELECOMMUNICATION INFORMATION:
 ; TELEPHONE: 612-332-5300
 ; TELEFAX: 612-332-9081
 ; INFORMATION FOR SEQ ID NO: 4:
 ; SEQUENCE CHARACTERISTICS:
 ; LENGTH: 28 amino acids
 ; TYPE: amino acid
 ; TOPOLOGY: linear
 ; MOLECULE TYPE: peptide
 ; IMMEDIATE SOURCE:
 ; CLONE: GLP1 (7-34)
 ; US-08-470-220A-4

Query Match 100.0%; Score 144; DB 1; Length 28;
 Best Local Similarity 100.0%; Pred. No. 9.4e-15;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEFTSDVSSYLEGAAKEFIAWLK 28
 DB 1 HAEFTSDVSSYLEGAAKEFIAWLK 28

RESULT 3
 US-08-967-374-4
 ; Sequence 4, Application US/08967374
 ; Patent No. 6037143
 ; GENERAL INFORMATION:
 ; APPLICANT: Wagner, Fred W.
 ; APPLICANT: Stout, Jay
 ; APPLICANT: Henriksen, Dennis

APPLICANT: Partridge, Bruce
 APPLICANT: Manning, Shane
 TITLE OF INVENTION: Enzymatic Method for Modification of
 RECOMBINANT POLYPEPTIDES
 NUMBER OF SEQUENCES: 26
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Merchant & Gould
 STREET: 3100 No. 6037143west Center
 CITY: Minneapolis
 STATE: MN
 COUNTRY: USA
 ZIP: 55402
 COMPUTER READABLE FORM:
 MEDIUM TYPE: Floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Patentin Release #1.0, Version #1.30
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/967,374
 FILING DATE:
 CLASSIFICATION:
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: 08/520,485
 FILING DATE: 29-AUG-1995
 ATTORNEY/AGENT INFORMATION:
 NAME: Carter, Charles G.
 REGISTRATION NUMBER: 35,093
 REFERENCE/DOCKET NUMBER: 8648.32-US01
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 612-332-5300
 TELEFAX: 612-332-9081
 INFORMATION FOR SEQ ID NO: 4:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 28 amino acids
 TYPE: amino acid
 TOPOLOGY: linear
 MOLECULE TYPE: peptide
 IMMEDIATE SOURCE:
 CLONE: GLP1 (7-34)
 US-08-967-374-4

Query Match 100.0%; Score 144; DB 3; Length 28;
 Best Local Similarity 100.0%; Pred. No. 9.4e-15;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEFTSDVSSYLEGAAKEFIAWLK 28
 DB 1 HAEFTSDVSSYLEGAAKEFIAWLK 28

RESULT 4
 US-08-472-349-5
 ; Sequence 5, Application US/08472349
 ; Patent No. 6284727
 ; GENERAL INFORMATION:
 ; APPLICANT: Kim, Yesook
 ; APPLICANT: Lambert, William J.
 ; APPLICANT: Qi, Hong
 ; APPLICANT: Gelfand, Robert A.
 ; APPLICANT: Geoghegan, Kieran F.
 ; APPLICANT: Danley, Dennis E.
 ; TITLE OF INVENTION: Prolonged Delivery of Peptides
 ; NUMBER OF SEQUENCES: 7
 ; CORRESPONDENCE ADDRESS:
 ; ADDRESSEE: Pfizer Inc
 ; STREET: 235 East 42nd Street, 20th Floor
 ; CITY: New York
 ; STATE: New York
 ; COUNTRY: U.S.A.
 ; ZIP: 10017-5755
 ; COMPUTER READABLE FORM:
 ; MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/472,349
FILING DATE:
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/181,655
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: SheyKa, Robert F.
REGISTRATION NUMBER: 31,304
REFERENCE/DOCKET NUMBER: PC8391
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)573-1189
TELEFAX: (212)573-1939
TELEX: N/A
INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: N/A
STRAIN: N/A
INDIVIDUAL ISOLATE: N/A
HAPLOTYPE: N/A
CELL LINE: N/A
IMMEDIATE SOURCE:
LIBRARY: N/A
CLONE: N/A
POSITION IN GENOME:
CHROMOSOME/SEGMENT: N/A
MAP POSITION: N/A
US-08-472-349-5

Query Match 100.0%; Score 144; DB 4; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLEGGAKEFIAMLVK 28
DB 1 HAEGFTSDVSYLEGGAKEFIAMLVK 28

RESULT 5
PCT-US95-15800-21
Sequence 21, Application PC/TUS9515800
GENERAL INFORMATION:
APPLICANT: Bionebbraska, Inc.
TITLE OF INVENTION: PRODUCTION OF PEPTIDES USING
TITLE OF INVENTION: RECOMBINANT FUSION PROTEIN CONSTRUCTS
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 Northwest Center, 90 S. 7th Street
CITY: Minneapolis
STATE: MN
COUNTRY: U.S.A.
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSeq Version 1.5
CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/US95/15800
FILING DATE: 07-DEC-1995
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/350,530
FILING DATE: 07-DEC-1994
ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.45USMO
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612/332-5300
TELEFAX: 612/332-9081
TELEX:
INFORMATION FOR SEQ ID NO: 21:
SEQUENCE CHARACTERISTICS:
LENGTH: 28 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
PCT-US95-15800-21

Query Match 100.0%; Score 144; DB 5; Length 28;
Best Local Similarity 100.0%; Pred. No. 9.4e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLEGGAKEFIAMLVK 28
DB 1 HAEGFTSDVSYLEGGAKEFIAMLVK 28

RESULT 6
US-08-095-162-18
Sequence 18, Application US/08095162
Patent No. 5512459
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partidge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5512459west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/095,162
FILING DATE: 20-JUL-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081

INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-095-162-18

Query Match 100.0%; Score 144; DB 1; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

RESULT 7
US-08-470-220A-18
Sequence 18, Application US/08470220A
Patent No. 5707826
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470.220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095,162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Aldin J.
REGISTRATION NUMBER: 28,659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-470-220A-18

Query Match 100.0%; Score 144; DB 1; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

RESULT 8
US-08-967-374-18
Sequence 18, Application US/08967374
Patent No. 6037143
GENERAL INFORMATION:

APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967,374
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/520,485
FILING DATE: 29-AUG-1995

ATTORNEY/AGENT INFORMATION:
NAME: Carter, Charles G.
REGISTRATION NUMBER: 35,093
REFERENCE/DOCKET NUMBER: 8648.32-USD1
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
US-08-967-374-18

Query Match 100.0%; Score 144; DB 3; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28

RESULT 9
US-08-472-349-4
Sequence 4, Application US/08472349
Patent No. 6284727
GENERAL INFORMATION:
APPLICANT: Kim, Yesook
APPLICANT: Lambert, William J.
APPLICANT: Qi, Hong
APPLICANT: Gelfand, Robert A.
APPLICANT: Geoghegan, Kieran F.
APPLICANT: Danley, Dennis E.
TITLE OF INVENTION: Prolonged Delivery of Peptides
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:

ADDRESSEE: Pfizer Inc
STREET: 235 East 42nd Street, 20th Floor
CITY: New York
STATE: New York
COUNTRY: U.S.A.
ZIP: 10017-5755
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentln Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/472,349
FILING DATE:
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/181,655
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Shevka, Robert F.
REGISTRATION NUMBER: 31,304
REFERENCE/DOCKET NUMBER: PC8391
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212)573-1189
TELEFAX: (212)573-1939
TELEX: N/A
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 29 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: N-terminal
ORIGINAL SOURCE:
ORGANISM: N/A
STRAIN: N/A
INDIVIDUAL ISOLATE: N/A
HAPLOTYPE: N/A
CELL LINE: N/A
IMMEDIATE SOURCE:
LIBRARY: N/A
CLONE: N/A
POSITION IN GENOME:
CHROMOSOME/SEGMENT: N/A
MAP POSITION: N/A
US-08-472-349-4

Query Match 100.0%; Score 144; DB 4; Length 29;
Best Local Similarity 100.0%; Pred. No. 9.8e-15;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28

RESULT 10
US-08-066-480-6
Sequence 6, Application US/08066480
Patent No. 5424286
GENERAL INFORMATION:
APPLICANT: Eng, John
TITLE OF INVENTION: Pharmaceutical Compositions And Use of
Extendin-3 and Extendin-4 for Treatment of Diabetes Mellitus
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
ADDRESSEE: Allegretti & Witcoff, Ltd.
STREET: 10 S. Wacker Drive
CITY: Chicago

STATE: Illinois
COUNTRY: USA
ZIP: 60606
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentln Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/066,480
FILING DATE: 24-MAR-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: McDonnell, John J.
REGISTRATION NUMBER: 26,949
REFERENCE/DOCKET NUMBER: 93,084
TELECOMMUNICATION INFORMATION:
TELEPHONE: 312-715-1000
TELEFAX: 312-715-1234
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
FEATURE:
NAME/KEY: Peptide
LOCATION: 1..30
OTHER INFORMATION: /label= GUP-1-7-36
OTHER INFORMATION: /note= "GUP-1(7-36) fragment"
US-08-066-480-6

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28
DB 1 HAEGFTSDVSSYLEGQAKKEFIAMLVK 28

RESULT 11
US-08-095-162-1
Sequence 1, Application US/08095162
Patent No. 5512459
GENERAL INFORMATION:
APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partidge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5512459west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentln Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/095,162
FILING DATE: 20-JUL-1993
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:

NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28, 659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
US-08-095-162-1

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28
Db 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28

RESULT 12

US-08-470-220A-1
Sequence 1, Application US/08470220A
Patent No. 5707826

GENERAL INFORMATION:

APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 5707826west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/470.220A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/095.162
FILING DATE: 20-JUL-1993
ATTORNEY/AGENT INFORMATION:
NAME: Nelson, Albin J.
REGISTRATION NUMBER: 28, 659
REFERENCE/DOCKET NUMBER: 8648.32-US01
TELECOMMUNICATION INFORMATION:
TELEPHONE: 612-332-5300
TELEFAX: 612-332-9081

INFORMATION FOR SEQ ID NO: 1:

SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
IMMEDIATE SOURCE:
CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)

US-08-470-220A-1

Query Match 100.0%; Score 144; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28
Db 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28

RESULT 13

US-08-927-227-1
Sequence 1, Application US/08927227A
Patent No. 5977071

GENERAL INFORMATION:

APPLICANT: Galloway, James A.
APPLICANT: Hoffmann, James A.
TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
TITLE OF INVENTION: COMPOSITIONS AND METHODS
FILE REFERENCE: X-9332B
CURRENT APPLICATION NUMBER: US/08/927.227A
CURRENT FILING DATE: 1997-09-10
NUMBER OF SEQ ID NOS: 1
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO: 1
LENGTH: 30
TYPE: PPT
ORGANISM: Homo sapiens
FEATURE:
OTHER INFORMATION: The arginine residue at position 30 is modified so
OTHER INFORMATION: as to replace the terminal carboxyl group with an
US-08-927-227-1

Query Match 100.0%; Score 144; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 1e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28
Db 1 HAEGFTSDVSSYLEGQAAKEFIAWLK 28

RESULT 14

US-08-967-374-1
Sequence 1, Application US/08967374
Patent No. 6037143

GENERAL INFORMATION:

APPLICANT: Wagner, Fred W.
APPLICANT: Stout, Jay
APPLICANT: Henriksen, Dennis
APPLICANT: Partridge, Bruce
APPLICANT: Manning, Shane
TITLE OF INVENTION: Enzymatic Method for Modification of
TITLE OF INVENTION: Recombinant Polypeptides
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Merchant & Gould
STREET: 3100 No. 6037143west Center
CITY: Minneapolis
STATE: MN
COUNTRY: USA
ZIP: 55402

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/967.374

FILING DATE:
 CLASSIFICATION:
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: 08/520,485
 FILING DATE: 29-AUG-1995
 ATTORNEY/AGENT INFORMATION:
 NAME: Carter, Charles G.
 REGISTRATION NUMBER: 35,093
 REFERENCE/DOCKET NUMBER: 8648.32-USDI
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: 612-332-5300
 TELEFAX: 612-332-9081
 INFORMATION FOR SEQ ID NO: 1:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 30 amino acids
 TYPE: amino acid
 TOPOLOGY: linear
 MOLECULE TYPE: peptide
 IMMEDIATE SOURCE:
 CLONE: GLP1 7-36-NH2 (Glucagon-like Peptide)
 US-08-967-374-1

Query Match 100.0%; Score 144; DB 3; Length 30;
 Best Local Similarity 100.0%; Pred. No. 1e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGTTSVSYLSEGOAKKEFIAMLVK 28
 |||||||
 DB 1 HAEGTTSVSYLSEGOAKKEFIAMLVK 28

RESULT 15
 US-09-348-136-1
 Sequence 1, Application US/09348136
 Patent No. 6133235
 GENERAL INFORMATION:
 APPLICANT: Galloway, James A.
 APPLICANT: Hoffmann, James A.
 TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALOGS,
 FILE REFERENCE: X-9332B
 CURRENT APPLICATION NUMBER: US/09/348,136
 CURRENT FILING DATE: 1999-07-06
 PRIOR APPLICATION NUMBER: US 08/927,227
 PRIOR FILING DATE: 1997-09-10
 NUMBER OF SEQ ID NOS: 1
 SOFTWARE: PatentIn Ver. 2.0
 SEQ ID NO 1
 LENGTH: 30
 TYPE: PRT
 ORGANISM: Homo sapiens
 FEATURE:
 OTHER INFORMATION: The arginine residue at position 30 is modified so
 OTHER INFORMATION: as to replace the terminal carboxyl group with an
 OTHER INFORMATION: amine.
 US-09-348-136-1

Query Match 100.0%; Score 144; DB 4; Length 30;
 Best Local Similarity 100.0%; Pred. No. 1e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGTTSVSYLSEGOAKKEFIAMLVK 28
 |||||||
 DB 1 HAEGTTSVSYLSEGOAKKEFIAMLVK 28

Search completed: May 20, 2002, 09:35:22
 Job time: 21 sec

THIS PAGE BLANK (USPTO)

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 20, 2002, 09:35:01 ; Search time 15 seconds
(without alignments)
179.367 Million cell updates/sec

Title: US-09-772-607A-2

Perfect score: 144
Sequence: 1 HAEGTFTSDVSYLGGQAKETLAWLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR-71:*
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	100.0	158	1	GCPG glucagon precursor
2	144	100.0	180	1	GCHU glucagon precursor
3	144	100.0	180	1	GCGP glucagon precursor
4	144	100.0	180	1	GCRPD glucagon precursor
5	144	100.0	180	1	GCRD glucagon precursor
6	144	100.0	180	1	GCHY glucagon precursor
7	144	100.0	180	1	GCHY glucagon precursor
8	144	100.0	180	2	AS7294 glucagon precursor
9	132	91.7	205	2	IS1301 glucagon precursor
10	132	91.7	205	2	IS1301 glucagon precursor
11	118	81.9	30	2	CG1125 glucagon-like pept
12	118	81.9	30	2	CG1125 glucagon-like pept
13	118	81.9	101	1	GCRGB glucagon precursor
14	112	77.8	63	1	GCDIC glucagon precursor
15	112	77.8	122	1	GCAF2 glucagon 2 precurs
16	110	76.4	72	1	GCGXA glucagon precursor
17	109	75.7	66	2	IS1093 glucagon - chinook
18	109	75.7	178	2	IS1057 glucagon 1 precurs
19	109	75.7	178	2	IS1057 glucagon 1 precurs
20	104	72.2	30	2	S44473 glucagon II precur
21	104	72.2	30	2	S44473 glucagon II precur
22	97	67.4	29	2	S07211 glucagon precursor
23	97	67.4	87	1	GCFIS glucagon - marbled
24	95	66.0	29	1	GCFE glucagon precursor
25	93	64.6	29	1	GCFN glucagon - smaller
26	93	64.6	124	1	GCAF glucagon - elephan
27	90	62.5	29	1	GCPV glucagon 1 precurs
28	90	62.5	29	2	A91740 glucagon - North A
29	90	62.5	29	2	A91741 glucagon - rabbit

ALIGNMENTS

30	90	62.5	29	2	A91742	glucagon - Arabian
31	90	62.5	29	2	C39258	glucagon - common
32	90	62.5	31	2	S44472	glucagon G2 - Nort
33	90	62.5	69	1	GCDG69	glucagon-69 - dog
34	88	61.1	29	1	GCDK	glucagon - duck
35	88	61.1	29	1	A61583	glucagon - ostrich
36	88	61.1	29	2	GCFIS	glucagon - slider
37	88	61.1	29	2	C60840	glucagon I - Europ
38	88	61.1	31	2	S44471	glucagon G1 - Nort
39	87	60.4	29	1	GCEB	glucagon - Chinchi
40	86	59.7	29	1	GCFLE	glucagon - Europea
41	86	59.7	29	2	A61135	glucagon - bigeye
42	83	57.6	29	2	S39018	glucagon - bowfin
43	83	57.6	39	1	HMGH4G	exendin-4 - Gila m
44	81	56.2	39	1	HMGH3Z	exendin-3 - Mexica
45	79	54.9	36	1	GCFI	glucagon-36 - spot

RESULT 1

GCPG
glucagon precursor - pig (fragment)
N:Alternate names: glicentin; glicentin: oxyntomodulin
N:Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C:Accession: A01540; A60312; A91781; B32614; A28064
R:Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A:Title: The primary structure of porcine glicentin (proglucagon).
A:Reference number: A94233; M01D:81248172
A:Accession: A01540
A:Molecule type: protein
A:Residues: 1-69 <TH1>
R:Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A:Title: Primary structure of a possible porcine proglucagon fragment.
A:Reference number: A60312
A:Accession: A60312
A:Molecule type: protein
A:Residues: 1-30 <TH2>
A:Note: this peptide is co-secreted with glucagon from the pancreas
R:Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
J. Biol. Chem. 264, 12826-12829, 1989
A:Title: Complete sequences of glucagon. V. Location of amide groups, acid degra
A:Reference number: A91781
A:Accession: A91781
A:Molecule type: protein
A:Residues: 33-61 <BRO>
R:Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A:Title: Complete sequences of glucagon-like peptide-1 from human and pig small intes
A:Reference number: A92732; M01D:89327228
A:Accession: B32614
A:Molecule type: protein
A:Residues: 78-107 <KOR>
R:Buhl, T.; Thim, L.; Orskov, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A:Title: Naturally occurring products of proglucagon 111-160 in the porcine and human
A:Reference number: A28064; M01D:88243712
A:Accession: A28064
A:Molecule type: protein
A:Residues: 111-158 <BOH>
C:Comment: X's represent missing amino acids, mostly basic, that are predicted to exi
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int
F:1-69/Product: glucagon-69 #status experimental <G65>
F:1-30/Region: glicentin-related peptide #status experimental
F:33-69/Product: glucagon-37 #status predicted <G37>
F:33-61/Product: glucagon #status experimental <GCN>
F:78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F:126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F:107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 144; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 1,1e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
DB 78 HAEGFTSDVSSYLEGQAAKEFIAMLVK 105

RESULT 2
GCHU

glucagon precursor [validated] - human
N:Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon; glucagon-like peptide 1 (GLP1)
C:Species: Homo sapiens (man)
C>Date: 24-Apr-1984 #sequence-revision 31-Mar-1993 #text-change 08-Dec-2000
C:Accession: A24377; A44197; A30875; A32614; A01541; S23309
R:White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A>Title: Structure of the human glucagon gene.
A:Reference number: A24377; MUID:86259053
A:Accession: A24377

A:Molecule type: DNA

A:Residues: 1-180 <WHI>

A:Cross-references: GB:X03991

R:Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983

A>Title: Exon duplication and divergence in the human preproglucagon gene.
A:Reference number: A44197; MUID:83271477

A:Accession: A44197

A:Molecule type: DNA

A:Residues: 1-179 <BEU>

A:Cross-references: GB:V01515; NID:931777; PIDN:CAA24759.1; PID:931778

R:Drucker, D.J.; Asa, S.

J. Biol. Chem. 263, 13475-13478, 1988

A>Title: Glucagon gene expression in vertebrate brain.
A:Reference number: A30875; MUID:88330860

A:Accession: A30875

A:Molecule type: mRNA

A:Residues: 1-180 <DRD>

A:Cross-references: GB:J04040; NID:9183269; PIDN:AAA52567.1; PID:9183270

R:Orskov, C.; Bersani, M.; Johnson, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989

A>Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestine
A:Reference number: A2732; MUID:89327238

A:Accession: A32614

A:Molecule type: protein

A:Residues: 98-127 <ORS>

R:Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972

A>Title: The amino acid sequence of human glucagon.
A:Reference number: A91373

A:Accession: A01541

A:Molecule type: protein

A:Residues: 53-81 <THO>

R:Tsuigita, A.; Takamoto, K.; Kamo, M.; Iwade, H.
Eur. J. Biochem. 206, 691-696, 1992

A>Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A:Reference number: S23188; MUID:92298996

A:Accession: S23309

A:Molecule type: protein

A:Residues: 53-81 <TSU>

C:Comment: In pancreatic alpha-cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-like peptide 2, and glucagon-like peptide 3. In the

C:Genetics:

A:Gene: GDB:GCG

A:Cross-references: GDB:119265; OMIM:138030

A:Map position: 2q36-q37

A:introns: 31/2; 85/2; 131/2; 179/2

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-180/Product: proglucagon #status experimental <PGC>

F:21-89/Product: glicentin #status experimental <GLN>

F:21-50/Product: glicentin-related polypeptide #status predicted <GRPP>

F:53-89/Product: oxyntomodulin #status experimental <OXN>

F:53-81/Product: glucagon #status experimental <GCN>

F:92-178/Product: major proglucagon fragment #status experimental <MPGF>

F:92-127/Product: glucagon-like peptide 1 #status experimental <GL1>

F:98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>

F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1,3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 3
GCCP

glucagon precursor - guinea pig
N:Alternate names: oxyntomodulin

N:Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucago

C:Species: Cavia porcellus (guinea pig)

C>Date: 30-Sep-1987 #sequence-revision 31-Dec-1992 #text-change 16-Jun-2000

C:Accession: A24856; A23849; A60323

R:Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986

A>Title: Mutations in the guinea pig preproglucagon gene are restricted to a specific
A:Reference number: A24856; MUID:86248118

A:Accession: A24856

A:Molecule type: mRNA

A:Residues: 1-180 <SEU>

A:Cross-references: DBJ:D00014; GB:N00014; NID:9220286; PIDN:BA00010.1; PID:9220289

R:Huang, C.G.; Eng, J.; Pan, Y.C.E.; Holmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986

A>Title: Guinea pig glucagon differs from other mammalian glucagons.
A:Reference number: A23849; MUID:86165412

A:Accession: A23849

A:Molecule type: protein

A:Residues: 53-81 <HUA>

R:Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985

A>Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (gluca
A:Reference number: A60323; MUID:86017849

A:Accession: A60323

A:Molecule type: protein

A:Residues: 53-81 <CON>

A>Note: glucagon-37 was not completely sequenced

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan

F:1-20/Domain: signal sequence #status predicted <SIG>

F:21-180/Product: proglucagon #status predicted <PGC>

F:21-50/Region: glicentin-related peptide #status predicted

F:53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>

F:53-81/Product: glucagon #status experimental <GCN>

F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>

F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>

F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1,3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||

```

|||||
Db      98 HAEGFTSDVSSYLEGQAQKEFIAMLVK 125

RESULT  4
GCRTRD
glucagon precursor - degu
N:Contains: glycentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C:Species: Octodon degus (degu)
C:Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C:Accession: C36118
R:Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A:Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A:Reference number: A36118; MUID:91155952
A:Accession: C36118
A:Molecule type: mRNA
A:Residues: 1-180 <NIS>
A:Cross-references: GB:M57688; NID:g202467; PIDN:AAA40588.1; PID:g202468
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: glycentin-related peptide #status predicted
F:53-81/Product: glucagon #status predicted <GCN>
F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match      100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy      1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
|||||
Db      98 HAEGFTSDVSSYLEGQAQKEFIAMLVK 125

RESULT  5
GCRTRD
glucagon precursor - rat
N:Contains: glycentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C:Species: Rattus norvegicus (Norway rat)
C:Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999
C:Accession: A22653; A25190; A44198
R:Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A:Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A:Reference number: A22653; MUID:85054853
A:Accession: A22653
A:Molecule type: DNA
A:Residues: 1-180 <HEI>
A:Cross-references: EMBL:K02809
R>Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5
J.Mojsov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A:Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev
A:Reference number: A25190; MUID:86304524
A:Accession: A25190
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-180 <MOJ>
R:Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A:Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s
A:Reference number: A44198; MUID:85051023
A:Accession: A44198
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-180 <HE2>
A:Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
C:Genetics:

```

```

A:Introns: 31/2; 85/2; 131/2; 179/2
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: glycentin-related peptide #status predicted
F:53-81/Product: glucagon #status predicted <GCN>
F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match      100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy      1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
|||||
Db      98 HAEGFTSDVSSYLEGQAQKEFIAMLVK 125

RESULT  6
GCHY
glucagon precursor - golden hamster
N:Contains: glycentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-li
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
C:Accession: A01539
R:Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
Nature 302, 716-718, 1983
A:Title: Hamster preproglucagon contains the sequence of glucagon and two related pep
A:Reference number: A01539; MUID:83167563
A:Accession: A01539
A:Molecule type: mRNA
A:Residues: 1-180 <BEL>
A:Cross-references: EMBL:J00059
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: glycentin-related peptide #status predicted
F:53-81/Product: glucagon #status predicted <GCN>
F:98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F:146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match      100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy      1 HAEGFTSDVSSYLEGQAQKEFIAMLVK 28
|||||
Db      98 HAEGFTSDVSSYLEGQAQKEFIAMLVK 125

RESULT  7
GCBQ
glucagon precursor - bovine
N:Contains: glycentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-li
C:Species: Bos primigenius taurus (cattle)
C:Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998
C:Accession: A93970; A92081; A01538
R:Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.
Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983
A:Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptides
A:Reference number: A93970; MUID:83299996
A:Accession: A93970
A:Molecule type: mRNA
A:Residues: 1-180 <LOP>
A:Cross-references: EMBL:R00107
R:Bromer, W.W.; Boucher, M.E.; Kofenberger Jr., J.E.
J. Biol. Chem. 246, 2822-2827, 1971

```

A:Title: Amino acid sequence of bovine glucagon.
A:Reference number: A92081; MUID:71166445
A:Accession: A92081
A:Molecule type: protein
A:Residues: 53-81

C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-180/Product: proglucagon #status predicted <PGC>
F:21-50/Region: gliocentin-related peptide #status predicted
F:53-81/Product: glucagon #status experimental <GCN>
F:98-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F:146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F:127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 8
A57294
glucagon precursor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C:Accession: A57294; S49903
R:Rotenberg, M.E.; Elertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A:Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A:Reference number: A57294; MUID:95247722
A:Accession: A57294
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-180 <ROT>
A:Cross-references: EMBL:246845; NID:9599880; PIDN:CAA86902.1; PID:9599881
C:Superfamily: glucagon
C:Keywords: carbohydrate metabolism; duplication; hormone; pancreas

Query Match 100.0%; Score 144; DB 2; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.3e-13;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
|||||
Db 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 9
GCCH
glucagon precursor - chicken
N:Contains: glucagon; glucagon-like peptide 1
C:Species: Gallus gallus (chicken)
C>Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C:Accession: S09992; A92189; A60836; A01542
R:Hasegawa, S.; Terazono, K.; Naito, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A:Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken F
A:Reference number: S09992; MUID:90249492
A:Accession: S09992
A:Molecule type: mRNA
A:Residues: 1-151 <HAS>
A:Cross-references: EMBL:Y07539; NID:963749; PIDN:CAA68827.1; PID:963750
R:Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A:Title: Chicken glucagon. Isolation and amino acid sequence studies.
A:Reference number: A92189; MUID:76069271
A:Accession: A92189

A:Molecule type: protein
A:Residues: 55-83 <POL>
R:Huang, J.; Eng, J.; Valow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A:Title: Chicken glucagon: sequence and potency in receptor assay.
A:Reference number: A60836; MUID:88113418
A:Accession: A60836
A:Molecule type: protein
A:Residues: 55-83 <HUA>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pan
F:1-22/Domain: signal sequence #status predicted <SIG>
F:23-151/Product: proglucagon #status predicted <PGC>
F:55-83/Product: glucagon #status experimental <GCN>
F:118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F:147/Modified site: amidated carboxyl end (Arg) (amide in mature form from following

Query Match 91.7%; Score 132; DB 1; Length 151;
Best Local Similarity 88.9%; Pred. No. 6.1e-12;
Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 27
|||||
Db 118 HAEGFTSDVSSYLEGQAAKEFIAMLV 144

RESULT 10
I51301
proglucagon - chicken
C:Species: Gallus gallus (chicken)
C>Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C:Accession: I51301
R:Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A:Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcrip
A:Reference number: A55895; MUID:95295739
A:Accession: I51301
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-206 <IRW>
A:Cross-references: GB:S78477; NID:9999386; PIDN:ABR34506.1; PID:9999387
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 91.7%; Score 132; DB 2; Length 206;
Best Local Similarity 88.9%; Pred. No. 8.5e-12;
Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLV 27
|||||
Db 118 HAEGFTSDVSSYLEGQAAKEFIAMLV 144

RESULT 11
B61125
glucagon-like peptide - American eel
C:Species: Anguilla rostrata (American eel)
C>Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C:Accession: B61125
R:Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A:Title: The primary structure of glucagon-like peptide but not insulin has been cons
A:Reference number: A61125; MUID:91340068
A:Accession: B61125
A:Molecule type: protein
A:Residues: 1-30 <CON>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication
F:1-30/Product: glucagon-like peptide #status experimental <GLP>
F:30/Modified site: amidated carboxyl end (Arg) #status predicted

Query Match 81.9%; Score 118; DB 2; Length 30;
Best Local Similarity 80.8%; Pred. No. 1.2e-10;
Matches 21; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLGGAAKEFTAWL 26
||||:|||||:||||:||||:||||:||||:
DB 1 HAEGTYSVSYLQDQAAKEFTWML 26

RESULT 12
glucagon-like peptide - European eel
C:Species: Anguilla anguilla (European eel)
C>Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C:Accession: C61125
R:Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A:Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A:Reference number: A61125; MUID:91340068
A:Accession: C61125
A:Molecule type: protein
A:Residues: 1-30 <CON>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication
F:1-30/Product: glucagon-like peptide #status experimental <GLP>
F:30/Modified site: amidated carboxyl end (Arg) #status experimental

Query Match 81.9%; Score 118; DB 2; Length 30;
Best Local Similarity 80.8%; Pred. No. 1.2e-10;
Matches 21; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLGGAAKEFTAWL 26
||||:|||||:||||:||||:||||:||||:
DB 1 HAEGTYSVSYLQDQAAKEFTWML 26

RESULT 13
glucagon precursor - bullfrog (fragments)
N:Alternate names: oxyntomodulin
C:Species: glucagon: glucagon-36 (oxyntomodulin); glucagon-like peptide 1; glucagon-11k
C:Species: Rana catesbeiana (bullfrog)
C>Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C:Accession: B28091; C28091; D28091
R:Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawlitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A:Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesbeia
A:Reference number: A92730; MUID:88257102
A:Accession: B28091
A:Molecule type: protein
A:Residues: 1-36 <PO2>
A:Accession: C28091
A:Molecule type: protein
A:Residues: 37-68 <PO2>
A:Accession: D28091
A:Molecule type: protein
A:Residues: 69-101 <PO3>
C:Superfamily: glucagon
C:Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F:1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F:1-29/Product: glucagon #status predicted <GCN>
F:37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F:69-101/Product: glucagon-like peptide 2 #status experimental <GL2>

Query Match 81.9%; Score 118; DB 1; Length 101;
Best Local Similarity 73.0%; Pred. No. 4.5e-10;
Matches 21; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLGGAAKEFTAWL 28
||||:|||||:||||:||||:||||:||||:
||||:|||||:||||:||||:||||:||||:

DB 37 HADGFTSDMSYLEEKAKEFTWMLK 64
GCIDC
RESULT 14
glucagon precursor - channel catfish (fragments)
C:Species: Ictalurus punctatus (channel catfish)
C>Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C:Accession: A05166; A05167
R:Andrews, P.C.; Ronner, P.
J. Biol. Chem. 260, 3910-3914, 1985
A:Title: Isolation and structures of glucagon and glucagon-like peptide from catfish
A:Reference number: A92514; MUID:85157536
A:Accession: A05166
A:Molecule type: protein
A:Residues: 1-29 <AND1>
A:Accession: A05167
A:Molecule type: protein
A:Residues: 30-63 <AND2>
C:Superfamily: glucagon
C:Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F:1-29/Product: glucagon #status experimental <GCN>
F:30-63/Product: glucagon-like peptide 1 #status experimental <GL1>

Query Match 77.8%; Score 112; DB 1; Length 63;
Best Local Similarity 76.9%; Pred. No. 2.1e-09;
Matches 20; Conservative 4; Mismatches 2; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLGGAAKEFTAWL 26
||||:|||||:||||:||||:||||:||||:
DB 30 HADGFTSDVSYLQDQAAKEFTWML 55

RESULT 15
GCAF2
glucagon 2 precursor - American goosefish
N:contains: glucagon; glucagon-like peptide 1
C:Species: Lopholatus americanus (American goosefish)
C>Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Jul-2000
C:Accession: A05150
R:Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.
J. Biol. Chem. 258, 3280-3284, 1983
A:Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid
A:Reference number: A05150; MUID:83135785
A:Accession: A05150
A:Molecule type: mRNA
A:Residues: 1-122 <UN>
A:Cross-references: GB:J00933; NID:964021; PIND:CAA23905.1; PID:964022
C:Superfamily: glucagon
C:Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F:1-21/Domain: signal sequence #status predicted <SIG>
F:22-122/Product: proglucagon 2 #status predicted <PGC2>
F:52-80/Product: glucagon #status predicted <GCN>
F:89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

Query Match 77.8%; Score 112; DB 1; Length 122;
Best Local Similarity 73.1%; Pred. No. 4.2e-09;
Matches 19; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLGGAAKEFTAWL 26
||||:|||||:||||:||||:||||:||||:
DB 89 HADGFTSDVSYLQDQAAKEFTWML 114

Search completed: May 20, 2002, 09:36:20
Job time: 79 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 20, 2002, 09:35:01 ; Search time 10.35 Seconds
(without alignments)
104.749 Million cell updates/sec

Title: US-09-772-607A-2
Perfect score: 144
Sequence: 1 HAECTFTSDVSYLEGQAKFIAMLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SWISSProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	100.0	158	1	GLUC_PIG
2	144	100.0	180	1	GLUC_BOVIN
3	144	100.0	180	1	GLUC_CAVPO
4	144	100.0	180	1	GLUC_HUMAN
5	144	100.0	180	1	GLUC_MESAU
6	144	100.0	180	1	GLUC_MOUSE
7	144	100.0	180	1	GLUC_OCTDE
8	144	100.0	180	1	GLUC_RAT
9	132	91.7	151	1	GLUC_CHICK
10	118	81.9	30	1	GLUC_ANGAN
11	118	81.9	103	1	GLUC_RANCA
12	112	77.8	122	1	GLUC_LOPAM
13	111	76.4	71	1	GLUC_ICTPU
14	110	75.7	78	1	GLUC_LEPSP
15	109	75.7	71	1	GLUC_PIAPE
16	105	72.9	121	1	GLUC_CARAU
17	104	72.2	68	1	GLUC_ONCKI
18	102.5	71.2	33	1	GLUC_ORENT
19	97	67.4	29	1	GLUC_TORMA
20	97	67.4	96	1	GLUC_MYOSC
21	95	66.0	29	1	GLUC_SCYCA
22	93	64.6	29	1	GLUC_CALMI
23	93	64.6	124	1	GLUC_LOPAM
24	90	62.5	29	1	GLUC_DIDMA
25	90	62.5	29	1	GLUC_IAMFL
26	90	62.5	69	1	GLUC_RABIT
27	90	62.5	69	1	GLUC_CANFA
28	88	61.1	29	1	GLUC_ANAPL
29	88	61.1	36	1	GLUC_ORENT
30	87	60.4	29	1	GLUC_CHIBR
31	86	59.7	29	1	GLUC_PLAFB
32	83	57.6	75	1	GLUC_AMICA
33	83	57.6	87	1	EXE4_HELISU

34	81	56.2	39	1	EXE3_HELHO
35	79	54.9	36	1	GLUC_HYDCO
36	59	41.0	42	1	GIP_BOVIN
37	59	41.0	42	1	GIP_PIG
38	59	41.0	72	1	VIP_BOVIN
39	59	41.0	72	1	VIP_PIG
40	59	41.0	72	1	VIP_RABIT
41	59	41.0	144	1	GIP_MOUSE
42	59	41.0	144	1	GIP_RAT
43	58	40.3	153	1	GIP_HUMAN
44	58	40.3	170	1	VIP_MOUSE
45	58	40.3	170	1	VIP_MOUSE

ALIGNMENTS

RESULT ID	1	GLUC_PIG	STANDARD:	PRT:	158 AA.
AC	P01274;				
DT	21-JUL-1986 (Rel. 01, Created)				
DT	01-NOV-1990 (Rel. 16, Last sequence update)				
DT	16-OCT-2001 (Rel. 40, Last annotation update)				
DE	Glucagon precursor [Contains: Glucicntin; Glucicntin-related polypeptide (GRP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2 (GLP2)] (Fragment).				
DE	CGC.				
GN	GCG.				
OS	Sus scrofa (Pig).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.				
OX	NCBI_TaxID=9823;				
RN	[1]				
RP	SEQUENCE OF 1-69.				
RX	MEDLINE=81248172; PubMed=6894800;				
RA	Thim L., Moody A.J.;				
RT	"The primary structure of porcine glucicntin (proglucagon).";				
RL	Regul. Pept. 2:139-150(1981).				
RN	[2]				
RP	SEQUENCE OF 1-69.				
RX	MEDLINE=82221776; PubMed=7045833;				
RA	Thim L., Moody A.J.;				
RT	"The amino acid sequence of porcine glucicntin.";				
RL	Peptides 2 Suppl. 2:37-39(1981).				
RN	[3]				
RP	SEQUENCE OF 33-61.				
RA	Bromer W.W., Sinn L.G., Behrens O.K.;				
RT	"The amino acid sequence of glucagon. V. Location of amide groups, acid degradation studies and summary of sequential evidence.";				
RL	J. Am. Chem. Soc. 79:2807-2810(1957).				
RN	[4]				
RP	SEQUENCE OF 78-107.				
RX	MEDLINE=89327238; PubMed=2753890;				
RA	Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;				
RT	"Complete sequences of glucagon-like peptide-1 from human and pig small intestine.";				
RL	J. Biol. Chem. 264:12826-12829(1989).				
RN	[5]				
RP	SEQUENCE OF 111-158.				
RX	MEDLINE=88243712; PubMed=3379036;				
RA	Buhl T., Thim L., Kotof H., Orskov C., Hartling H., Holst J.J.;				
RT	"Naturally occurring products of proglucagon 111-160 in the porcine and human small intestine.";				
RL	J. Biol. Chem. 263:8621-8624(1988).				
RN	[6]				
RP	X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).				
RX	MEDLINE=76051297; PubMed=171582;				
RA	Sasaki K., Dockerill S., Adamiak D.A., Tickle I.J., Blundell T.L.;				
RT	"X-ray analysis of glucagon and its relationship to receptor binding.";				
RL	Nature 257:751-757(1975).				
CC	-1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLUCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.				

```

CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC HUMAN SEQUENCE.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR PIR: A01540; GCPG.
DR PDB: 1GCM; 30-SEP-83.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 3.
KW Glucagon family; Hormone; Cleavage on pair of basic residues;
KW 3D-structure.
FT NON_TER 1 1 GLICENTIN.
FT PEPTIDE 1 69 GLICENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 1 30 GLUCAGON.
FT PEPTIDE 33 61 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 78 107 GLUCAGON-LIKE PEPTIDE 2.
FT PEPTIDE 126 158 GLUCAGON-LIKE PEPTIDE 2.
FT HELIX 39 42
FT TURN 43 45
FT HELIX 46 55
FT TURN 56 57
SQ SEQUENCE 158 AA; 18212 MW; 28C6FCF257F33B2 CRC64;

```

```

Query Match 100.0%; Score 144; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 5,7e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

OY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
    ||||||||||||||||||||
DB 78 HAEGFTSDVSSYLEGQAKEFIAMLVK 105

```

```

RESULT 2
ID GLUC_BOVIN STANDARD: PRT; 180 AA.
AC P01272;
DT 21-JUL-1986 (Rel. 01, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocorticoid-related polypeptide (GRP)];
DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE (GRP2)].
GN GCG.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83299996; PubMed=6577439;
RA Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
RT "Mammalian pancreatic preproglucagon contains three glucagon-related
RT peptides";
RL Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
RN [2]
RP SEQUENCE OF 53-81.
RX MEDLINE=71166445; PubMed=5102927;
RA Bremer W.W., Boucher M.E., Koffenberger J.E. Jr.;
RT "Amino acid sequence of bovine glucagon.";
RL J. Biol. Chem. 246:2822-2827(1971).
RN [3]
RP FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
RP RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS

```

```

CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation on
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib.ch)
CC -----
DR EMBL: K00107; AAA30538.1; -.
DR PIR: A01538; GCHO.
DR HSSP: P01274; 1GCM.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; signal.
FT SIGNAL 1 20
FT PEPTIDE 1 50 GLICENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20944 MW; 8D9BAFF05B9F15FF CRC64;

```

```

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

OY 1 HAEGFTSDVSSYLEGQAKEFIAMLVK 28
    ||||||||||||||||||||
DB 98 HAEGFTSDVSSYLEGQAKEFIAMLVK 125

```

```

RESULT 3
ID GLUC_CAVPO STANDARD: PRT; 180 AA.
AC P05110;
DT 13-AUG-1987 (Rel. 05, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucocorticoid-related polypeptide (GRP)];
DE Glucagon; Glucagon-37 (Oxyntomodulin); Glucagon-like peptide 1 (GLP1);
DE Glucagon-like peptide 2 (GRP2)].
GN GCG.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.
OX NCBI_TaxID=10141;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=86248118; PubMed=3755107;
RA Seino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
RT "Mutations in the guinea pig preproglucagon gene are restricted to a
RT specific portion of the prohormone sequence.";
RL FEBS Lett. 203:25-30(1986).
RN [2]
RP SEQUENCE OF 53-81.
RX MEDLINE=86165412; PubMed=3956884;
RA Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
RT "Guinea pig glucagon differs from other mammalian glucagons.";
RL Diabetes 35:508-512(1986).
RN [3]
RP PARTIAL SEQUENCE OF 53-89.
RX MEDLINE=86017849; PubMed=4048553;
RA Conlon J.M., Hansen H.F., Schwartz T.W.;
RT "Primary structure of glucagon and a partial sequence of
RT oxyntomodulin (glucagon-37) from the guinea pig.";
RL Regul. Pept. 11:309-320(1985).
RN [4]
RP FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND

```


CC RAISES THE BLOOD SUGAR LEVEL.
 CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
 CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: D00014; BAA00010.1; -
 DR PIR: A24856; GCGP.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA: 3.
 DR PROSITE: PS00260; GLUCAGON; 4.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
 FT SIGNAL 1 20
 FT PEPTIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 93 89 GLUCAGON-37.
 FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
 SQ SEQUENCE 180 AA; 20972 MW; 702PB18116ID2776 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
 Best Local Similarity 100.0%; Pred No. 6.6e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLSEGOAKEFIAMLVK 28
 ||||||||||||||||||||||||||||
 DB 98 HAEGFTSDVSYLSEGOAKEFIAMLVK 125

RESULT 4
 GLUC_HUMAN STANDARD; PRT; 180 AA.
 AC P01275;
 DT 21-JUL-1986 (Rel. 01, Last sequence update)
 DT 13-ANG-1987 (Rel. 05, Last sequence update)
 DT 16-OCT-2001 (Rel. 40, Last annotation update)
 DE Glucagon precursor [contains: Glucocent-in-related polypeptide (GRP);
 DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
 DE (GLP2)].
 GN GCG.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=88330860; PubMed=2901414;
 RA Drucker D.V., Asa S.;
 RT "Glucagon gene expression in vertebrate brain.";
 RL J. Biol. Chem. 263:13475-13478(1988).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=86259053; PubMed=3725587;
 RA White J.W., Saunders G.F.;
 RT "Structure of the human glucagon gene.";
 RL Nucleic Acids Res. 14:4719-4730(1986).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC TISSUE=Liver;

RX MEDLINE=83271477; PubMed=6877358;
 RA Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
 RT "Exon duplication and divergence in the human preproglucagon gene.";
 RL Nature 304:368-371(1983).
 RN [4]
 RP SEQUENCE OF 53-81.
 RA Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
 RT "The amino acid sequence of human glucagon.";
 RL FEBS Lett. 21:315-319(1972).
 RN [5]
 RP SEQUENCE OF 98-127.
 RX MEDLINE=89327238; PubMed=2753890;
 RA Oroskov C., Bersani M., Johnsen A.H., Hoefrup P., Holst J.J.;
 RT "Complete sequences of glucagon-like peptide-1 from human and pig
 RT small intestine.";
 RL J. Biol. Chem. 264:12826-12829(1989).
 RN [6]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
 RX MEDLINE=98334683; PubMed=9667960;
 RA Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.M.,
 RA Azizeh B.Y., Trivedi D., Hudby V.J.;
 RT "Structure-function studies on positions 17, 18, and 21 replacement
 RT analogues of glucagon: the importance of charged residues and salt
 RT bridges in glucagon biological activity.";
 RL J. Med. Chem. 41:2693-2700(1998).
 CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
 CC RAISES THE BLOOD SUGAR LEVEL.
 CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
 CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- PHARMACEUTICAL: Available under the names Glucagon (Eli Lilly) and
 CC Glucagon or Glucagon Novo Nordisk (Novo Nordisk). Used to treat
 CC severe hypoglycemia in insulin-dependent diabetics.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC -1- DATABASE: NAME-Glucagon at Eli Lilly;
 CC NOTE-Clinical information on Eli Lilly glucagon products;
 CC WWW="http://www.lillydiabetes.com/products/PatientInfo.cfm".
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: J04040; AAA52567.1; -
 DR EMBL: X03991; CAA27627.1; -
 DR EMBL: V01515; CAA24759.1; -
 DR PIR: A24377; GCHU.
 DR PIR: S23309; S23309.
 DR PDB: 1BH0; 18-NOV-98.
 DR MTM: 138030; -
 DR MTM: 231530; -
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA: 3.
 DR PROSITE: PS00260; GLUCAGON; 4.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
 KW Pharmaceutical; 3D-structure.
 FT SIGNAL 1 20
 FT PEPTIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 98 127 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
 FT CONFLICT 82 82 K -> N (IN REF. 3).
 SQ SEQUENCE 180 AA; 20909 MW; 7A99DEC629B2862C CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;

Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 5
ID GLUC_MESAU STANDARD; PRT; 180 AA.
AC P01273;
DT 21-JUL-1986 (rel. 01, Created)
DT 01-FEB-1996 (rel. 33, Last sequence update)
DT 16-OCT-2001 (rel. 40, Last annotation update)
DE Glucagon precursor [contains: Glucocin-related polypeptide (GRP);
DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE (GLP2)].
GN GCG.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83167563; PubMed=6835407;
RA Bell G.I., Santerre R.F., Mullenbach G.T.;
RT "Hamster preproglucagon contains the sequence of glucagon and two
RT related peptides."
RL Nature 302:716-718(1983).
RN [2]
RP REVISIONS TO 12-15.
RA Bell G.I.;
RT Submitted (XXX-1985) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOCIN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: J00059; AAA37074.1; -.
DR PIR: A01539; GCHV.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 20
FT PEPTIDE 1 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20954 MW; 02791B49D7ADDA4B CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAMLVK 28
DB 98 HAEGFTSDVSSYLEGQAAKEFIAMLVK 125

RESULT 6
ID GLUC_MOUSE STANDARD; PRT; 180 AA.
AC P55095;
DT 01-OCT-1996 (rel. 34, Created)
DT 01-OCT-1996 (rel. 34, Last sequence update)
DT 01-MAR-2002 (rel. 41, Last annotation update)
DE Glucagon precursor [contains: Glucocin-related polypeptide (GRP);
DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE (GLP2)].
GN GCG.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=pancreatic islets;
RX MEDLINE=95247722; PubMed=7730317;
RA Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.,
RA McDonald J.K., Mackin R.B., Noe B.D.;
RT "Processing of mouse proglucagon by recombinant prohormone convertase
RT 1 and immunopurified prothormone convertase 2 in vitro."
RL J. Biol. Chem. 270:10136-10146(1995).
RN [2]
RP SEQUENCE FROM N.A.
RA Shamsadin R., Knepel W.;
RT "Mouse glucagon full length cDNA."
RL Submitted (JUN-2000) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOCIN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.
CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLOS
CC HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: Z46845; CA86902.1; -.
DR EMBL: AF276754; AAK96898.1; -.
DR HSSP: P01274; IGCN.
DR MGD: MGI:95674; Gcg.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 4.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 20
FT PEPTIDE 1 50 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 53 81 GLUCAGON.
FT PEPTIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.
FT PEPTIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
SQ SEQUENCE 180 AA; 20906 MW; 595A6DD9A589950 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.6e-14;
Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGOAKKEFIAMLVK 28
 DB 98 HAEGFTSDVSSYLEGOAKKEFIAMLVK 125

RESULT 7
 ID GLUC_OCTDE STANDARD: PRT: 180 AA.
 AC P22890:
 DT 01-AUG-1991 (rel. 19, Created)
 DT 01-AUG-1991 (rel. 19, Last sequence update)
 DT 16-OCT-2001 (rel. 40, Last annotation update)
 DE Glucagon precursor [contains: Glucenin-related polypeptide (GRP);
 DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
 DE (GLP2)].
 GN GCG.
 OS Octodon degus (Degu).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Octodontidae; Octodon.
 OX NCBI_TaxID=10160;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=91155952; PubMed=2293024;
 RA Nishl M., Steiner D.F.;
 RT "Cloning of complementary DNAs encoding islet amyloid polypeptide,
 RT insulin, and glucagon precursors from a New World rodent, the degu,
 RT Octodon degus.";
 RL Mol. Endocrinol. 4:1192-1198(1990).
 CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
 CC -1- RAISES THE BLOOD SUGAR LEVEL.
 CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILUS
 CC HEIGHT IN THE SMALL INTESTINE. CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@sib-sib.ch).
 CC -----
 DR EMBL: M57688; AAA40588.1; -
 DR PIR: C36118; GCRTDU.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 3.
 DR PROSITE: PS00260; GLUCAGON; 4.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
 KW Amidation.
 FT SIGNAL 1 20
 FT PEPIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPIDE 53 81 GLUCAGON.
 FT PEPIDE 92 127 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPIDE 146 178 GLUCAGON-LIKE PEPTIDE 2.
 FT MOD.RES 127 127 AMIDATION (G-128 PROVIDE AMIDE GROUP).
 SO SEQUENCE 180 AA; 21165 MW; 6EB836160A9A3051 CRC64;

Query Match 100.0%; Score 144; DB 1; Length 180;
 Best Local Similarity 100.0%; Pred. No. 6.6e-14;
 Matches 28; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGOAKKEFIAMLVK 28
 DB 98 HAEGFTSDVSSYLEGOAKKEFIAMLVK 125

RESULT 8
 ID GLUC_RAT STANDARD: PRT: 180 AA.
 AC P06863;
 DT 01-JAN-1988 (rel. 06, Created)
 DT 01-JAN-1988 (rel. 06, Last sequence update)
 DT 16-OCT-2001 (rel. 40, Last annotation update)
 DE Glucagon precursor [contains: Glucenin-related polypeptide (GRP);
 DE Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
 DE (GLP2)].
 GN GCG.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=85054853; PubMed=6094539;
 RA Heinrich G., Gros P., Habener J.F.;
 RT "Glucagon gene sequence. Four of six exons encode separate functional
 RT domains of rat pre-proglucagon.";
 RL J. Biol. Chem. 259:14082-14087(1984).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=85051023; PubMed=6548696;
 RA Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
 RT "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
 RT amino acid sequences of the rat pancreatic complementary
 RT deoxyribonucleic acid.";
 RL Endocrinology 115:2176-2181(1984).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=86304324; PubMed=3528148;
 RA Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
 RA Habener J.F.;
 RT "Preproglucagon gene expression in pancreas and intestine diversifies
 RT at the level of post-translational processing.";
 RL J. Biol. Chem. 261:11880-11889(1986).
 CC -1- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
 CC -1- RAISES THE BLOOD SUGAR LEVEL.
 CC -1- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILUS
 CC HEIGHT IN THE SMALL INTESTINE. CONCOMITANT WITH INCREASED CRYPT
 CC CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
 CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@sib-sib.ch).
 CC -----
 DR EMBL: K02813; AAA41235.1; -
 DR EMBL: K02809; AAA41235.1; JOINED.
 DR EMBL: K02810; AAA41235.1; JOINED.
 DR EMBL: K02811; AAA41235.1; JOINED.
 DR EMBL: K02812; AAA41235.1; JOINED.
 DR PIR: A22655; GCRT.
 DR PIR: A44198; A44198.
 DR HSSP: P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS: PR00275; GLUCAGON.
 DR SMART: SM00070; GLUCA; 3.
 DR PROSITE: PS00260; GLUCAGON; 4.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
 KW Amidation.
 FT SIGNAL 1 20
 FT PEPIDE 21 50 GLICENTIN-RELATED POLYPEPTIDE.
 FT PEPIDE 53 81 GLUCAGON.
 FT PEPIDE 92 128 GLUCAGON-LIKE PEPTIDE 1.


```

GLUC_RANCA
ID GLUC_RANCA STANDARD; PRT; 103 AA.
AC P15438; P15439; P15440;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-JUL-1993 (Rel. 26, Last sequence update)
DE 01-JUL-1993 (Rel. 26, Last annotation update)
DE Glucagon precursor (Fragments).
OS Rana catesbeiana (Bull. frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Neobatrachia; Ranioidea; Ranidae; Rana.
OX NCBI_TaxID=8400;
RN [1]
RP SEQUENCE.
RC TISSUE=Pancreas;
RX MEDLINE=88257102; PubMed=3260236;
RA Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawlitch A.B.;
RT "Isolation of peptide hormones from the pancreas of the bullfrog
RT (Rana catesbeiana). Amino acid sequences of pancreatic polypeptide,
RT oxyntomodulin, and two glucagon-like peptides.",
RT J. Biol. Chem. 263:9746-9751(1988).
RL
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC OTHER SPECIES SEQUENCES.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR PIR: B28091; GCFGB.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 3.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 3.
DR PROSITE: PS00260; GLUCAGON; 3.
KW Glucagon family; Hormone.
FT PEPTIDE 1 29 GLUCAGON.
FT PEPTIDE 1 36 GLUCAGON-36 (OXYNTOMODULIN).
FT PEPTIDE 39 70 GLUCAGON-LIKE PEPTIDE 1.
FT NON-CONS 70 71
FT PEPTIDE 71 103
SQ SEQUENCE 103 AA; 11719 MW; 316287B7BAE1C8F7 CRC64;

Query Match 81.9%; Score 118; DB 1; Length 103;
Best Local Similarity 75.0%; Pred. No. 2.3e-10;
Matches 21; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLEGQAKKEFIAMLVK 28
DB 39 HADGFTSDMSYLEKAKKEFYDWLIK 66

RESULT 12
GLUC_LOPAM STANDARD; PRT; 122 AA.
ID GLUC_LOPAM
AC P04092;
DT 01-NOV-1986 (Rel. 03, Created)
DT 01-NOV-1986 (Rel. 03, Last sequence update)
DE 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon II precursor [contains: Glucagon-related polypeptide (GRP);
DE Glucagon II; Glucagon-like peptide II].
OS Lophius americanus (American goosefish) (Anglerfish).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC Acanthomorpha; Paracanthopterygii; Lophiiformes; Lophiidae; Lophius.
OX NCBI_TaxID=8073;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83135785; PubMed=6338015;
RA Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;
RT "Anglerfish islet pre-proglucagon II. Nucleotide and corresponding
RT amino acid sequence of the cDNA.",
RT J. Biol. Chem. 258:3280-3284(1983).

```

```

RN [2]
RP PROCESSING.
RX MEDLINE=86286913; PubMed=3526301;
RA Noe B.D., Andrews P.C.;
RT "Specific glucagon-related peptides isolated from anglerfish islets
RT are metabolic cleavage products of (pre)proglucagon-II.",
RT Peptides 7:331-339(1986).
RL
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: V00632; CAA23905.1; -.
DR PIR: A05150; GCAF2.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT SIGNAL 1 21
FT PEPTIDE 22 49 GLUCENTIN-RELATED POLYPEPTIDE.
FT PEPTIDE 52 80 GLUCAGON II.
FT PROPEP 83 86
FT PEPTIDE 89 119
SQ SEQUENCE 122 AA; 14171 MW; 5140ACA7EF915519 CRC64;

Query Match 77.8%; Score 112; DB 1; Length 122;
Best Local Similarity 73.1%; Pred. No. 2e-09;
Matches 19; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

QY 1 HAEGFTSDVSYLEGQAKKEFIAMLVK 26
DB 89 HADGFTSDVSYLEGQAKKEFIAMLVK 114

RESULT 13
GLUC_ICTPU STANDARD; PRT; 71 AA.
ID GLUC_ICTPU
AC P04093;
DT 01-NOV-1986 (Rel. 03, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-NOV-1990 (Rel. 16, Last annotation update)
DE Glucagon precursor (Fragment).
OS Ictalurus punctatus (Channel catfish).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
OC Siluriformes; Ictaluridae; Ictalurus.
OX NCBI_TaxID=7998;
RN [1]
RP SEQUENCE.
RC TISSUE=Pancreas;
RX MEDLINE=87156787; PubMed=3030323;
RA Hoossein N.M., Mahrenholz A.M., Andrews P.C., Gurd R.S.;
RT "Biological activities of catfish glucagon and glucagon-like
RT peptide.",
RT Biochem. Biophys. Res. Commun. 143:87-92(1987).
RN [2]
RP SEQUENCE.
RX MEDLINE=85157536; PubMed=3838546;
RA Andrews P.C., Ronner P.;

```

RT "Isolation and structures of glucagon and glucagon-like peptide from
RT catfish pancreas.";
RL J. Biol. Chem. 260:3910-3914(1985).
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC AMERICAN GOOSEFISH SEQUENCES.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR PIR: A05166; GCIDC.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.
KM Glucagon family; Hormone.
FT NON_TER 1 1 29 GLUCAGON.
FT PEPTIDE 38 71 71 GLUCAGON-LIKE PEPTIDE.
FT CONFLICT 53 53 E -> D (IN REF. 2).
FT NON_TER 71 71
SQ SEQUENCE 71 AA; 8173 MW; 24688E79AD981A8F CRC64;

Query Match 77.1%; Score 111; DB 1; Length 71;
Best Local Similarity 76.9%; Pred. No. 1.6e-09;
Matches 20; Conservative 4; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAML 26
||:|||||:|||||:|||||:|
Db 38 HADGTTSDVSSYLEGQAAKEFIAML 63

RESULT 14
ID GLUC_LEPSP STANDARD; PRT; 78 AA.
AC P09566;
DT 01-MAR-1989 (Rel. 10, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glucagon; Glucagon-36 (oxyntomodulin);
DE Glucagon-like peptide] (Fragment).
OS Lepisosteus spatula (Alligator gar) (Atractosteus spatula).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Semionotiformes; Lepisosteidae;
OC Lepisosteus.
OX NCBI_TaxID=7917;
RN [1]
RP SEQUENCE OF 1-36 AND 45-78.
RC TISSUE=Pancreas;
RX MEDLINE=88030594; PubMed=3282974;
RA Pollock H.G., Kimmel J.R., Ebner K.E., Hamilton J.W., Rouse J.B.,
RA Lance V., Rawlitch A.B.;
RT "Isolation of alligator gar (Lepisosteus spatula) glucagon,
RT oxyntomodulin, and glucagon-like peptide: amino acid sequences of
RT oxyntomodulin and glucagon-like peptide.";
RL Gen. Comp. Endocrinol. 69:133-140(1988).
RN [2]
RP PRELIMINARY SEQUENCE OF 1-29.
RC TISSUE=Pancreas;
RX MEDLINE=88030594; PubMed=3311873;
RA Pollock H.G., Kimmel J.R., Hamilton J.W., Rouse J.B., Ebner K.E.,
RA Lance V., Rawlitch A.B.;
RT "Isolation and structures of alligator gar (Lepisosteus spatula)
RT insulin and pancreatic polypeptide.";
RL Gen. Comp. Endocrinol. 67:375-382(1987).
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC AMERICAN GOOSEFISH SEQUENCES.

CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR PIR: S06339; GCGXA.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.
KM Glucagon family; Hormone.
FT NON_TER 1 1 29 GLUCAGON.
FT PEPTIDE 38 71 71 GLUCAGON-LIKE PEPTIDE.
FT CONFLICT 53 53 E -> D (IN REF. 2).
FT NON_TER 71 71
SQ SEQUENCE 71 AA; 8990 MW; 30106496271594E0 CRC64;

Query Match 76.4%; Score 110; DB 1; Length 78;
Best Local Similarity 73.1%; Pred. No. 2.5e-09;
Matches 19; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAML 26
||:|||||:|||||:|||||:|
Db 45 HADGTTSDVSSYLEGQAAKEFIAML 70

RESULT 15
ID GLUC_PIAME STANDARD; PRT; 71 AA.
AC P81880;
DT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DT 30-MAY-2000 (Rel. 39, Last annotation update)
DE Glucagon precursor (Fragment).
OS Placactus mesopotamicus (Pacu).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Osteichthyes; Placatus.
OC Characiformes; Characidae; Serrasalminae; Placatus.
OX NCBI_TaxID=42528;
RN [1]
RP SEQUENCE.
RC TISSUE=Pancreas;
RX MEDLINE=99259587; PubMed=10327603;
RA de Lima J.A., Oliveira B., Conlon J.M.;
RT "Purification and characterization of insulin and peptides derived
RT from proglucagon and prosomatostatin from the fruit-eating fish, the
RT pacu Placatus mesopotamicus.";
RL Comp. Biochem. Physiol. 122B:127-135(1999).
CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC THE BLOOD SUGAR LEVEL.
CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC -1- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC OTHER FISH SEQUENCES.
CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.
KM Glucagon family; Hormone.
FT NON_TER 1 1 29 GLUCAGON.
FT PEPTIDE 38 71 71 GLUCAGON-LIKE PEPTIDE.
FT CONFLICT 53 53 E -> D (IN REF. 2).
FT NON_TER 71 71
SQ SEQUENCE 71 AA; 8146 MW; F66A3CA2DD9806C5 CRC64;

Query Match 75.7%; Score 109; DB 1; Length 71;
Best Local Similarity 73.1%; Pred. No. 3.2e-09;
Matches 19; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFIAML 26
||:|||||:|||||:|||||:|
Db 38 HADGTTSDVSSYLEGQAAKEFIAML 63

Search completed: May 20, 2002, 09:36:37
Job time: 96 sec

THIS PAGE BLANK (USPTO)

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: May 20, 2002, 09:35:01 ; Search time 25.23 Seconds
(without alignments)
191.988 Million cell updates/sec

Title: US-09-772-607A-2
Perfect score: 144
Sequence: 1 HAEFTSDVSSYLEGQAKKEFIAMLVK 28

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues
Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_19:*

- 1: sp.archaea:*
- 2: sp.bacteria:*
- 3: sp.fungi:*
- 4: sp.human:*
- 5: sp.invertebrate:*
- 6: sp.mammal:*
- 7: sp.mhc:*
- 8: sp.organelle:*
- 9: sp.phage:*
- 10: sp.plant:*
- 11: sp.rodent:*
- 12: sp.virus:*
- 13: sp.vertebrate:*
- 14: sp.unclassified:*
- 15: sp.rvivirus:*
- 16: sp.bacteriaph:*
- 17: sp.archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	144	100.0	180	6 Q951G0	Q951G0 canis fami
2	132	91.7	206	13 Q91410	Q91410 gallus gall
3	126	87.5	204	13 Q12956	Q12956 heloderma s
4	114	79.2	266	13 Q42143	Q42143 xenopus lae
5	109	75.7	72	13 Q91409	Q91409 oncorhynch
6	109	75.7	178	13 Q91971	Q91971 oncorhynch
7	109	75.7	178	13 Q91189	Q91189 oncorhynch
8	109	75.7	219	13 Q42144	Q42144 xenopus lae
9	102	70.8	160	13 Q9PURI	Q9PURI petromyzon
10	98	68.1	121	13 Q9DD66	Q9DD66 brachydanto
11	95	66.0	62	13 Q9PRW9	Q9PRW9 scyliorhinu
12	88	61.1	96	13 Q9DG43	Q9DG43 ambloplites
13	83	57.6	120	13 Q9PURI	Q9PURI petromyzon
14	59	41.0	130	11 Q9CVF1	Q9CVF1 mus musculu
15	59	41.0	144	11 Q9D887	Q9D887 mus musculu
16	59	41.0	389	2 Q93IH2	Q93IH2 wolfinella s

17	58	40.3	169	4 Q960K3	Q960K3 homo sapien
18	58	40.3	171	11 Q9D227	Q9D227 mus musculu
19	54.5	37.8	426	16 P71006	P71006 bacillus su
20	53	36.8	172	13 Q9DE29	Q9DE29 brachydanto
21	52	36.1	138	13 Q98SP4	Q98SP4 oncorhynch
22	52	36.1	171	13 Q9PUF8	Q9PUF8 xenopus lae
23	52	36.1	173	13 Q98SP5	Q98SP5 oncorhynch
24	52	36.1	175	13 Q90X24	Q90X24 ictalurus p
25	51	35.4	352	5 Q9AX01	Q9AX01 caenorhabdi
26	51	35.4	810	4 Q9NTW8	Q9NTW8 homo sapien
27	51	35.4	867	4 Q9DUX9	Q9DUX9 homo sapien
28	50.5	35.1	372	10 Q9XFW9	Q9XFW9 cicer ariet
29	50	34.7	89	13 Q98SP6	Q98SP6 anas platyr
30	50	34.7	331	5 Q18301	Q18301 caenorhabdi
31	49	34.0	175	13 Q98T03	Q98T03 brachydanto
32	49	34.0	315	11 Q9D3P0	Q9D3P0 mus musculu
33	49	34.0	504	11 Q99M45	Q99M45 mus musculu
34	49	34.0	505	11 P97770	P97770 mus musculu
35	49	34.0	571	5 Q966F0	Q966F0 caenorhabdi
36	49	34.0	576	5 Q9B7J4	Q9B7J4 caenorhabdi
37	49	34.0	589	5 Q9N5B9	Q9N5B9 caenorhabdi
38	49	34.0	634	3 Q9HEE5	Q9HEE5 neurospora
39	49	34.0	786	5 Q9N5B7	Q9N5B7 caenorhabdi
40	49	34.0	835	5 Q9N5B8	Q9N5B8 caenorhabdi
41	48	33.3	28	13 Q9PRN8	Q9PRN8 carassius a
42	48	33.3	171	10 Q9FGY5	Q9FGY5 arabidopsis
43	48	33.3	575	9 Q38545	Q38545 bacterioph
44	47.5	33.0	326	16 Q55684	Q55684 synecocyst
45	47	32.6	155	17 Q9UYL7	Q9UYL7 pyrococcus

ALIGNMENTS

RESULT 1	Q951G0	PRELIMINARY;	PRT;	180 AA.
AC	Q951G0;			
DT	01-DEC-2001 (TREMBLrel. 19, Created)			
DT	01-DEC-2001 (TREMBLrel. 19, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	PREPROGLUCAGON.			
OS	Canis familiaris (Dog).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.			
OX	NCBI_TaxID=9615;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Irwin D.M.;			
RT	"cDNA cloning of proglucagon from the stomach and pancreas of the dog."			
RL	Submitted (SEP-2000) to the EMBL/GenBank/DBJ databases.			
DR	EMBL; AF308439; AAL09425.1; -			
SQ	SEQUENCE 180 AA; 2114 MW; 80F6941AFC324FD CRC64;			

Query Match	100.0%;	Score 144;	DB 6;	Length 180;
Best local similarity	100.0%;	Pred. No. 4.2e-14;		
Matches 28;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;

QY	1 HAEFTSDVSSYLEGQAKKEFIAMLVK 28
DB	98 HAEFTSDVSSYLEGQAKKEFIAMLVK 125

RESULT 2	Q91410	PRELIMINARY;	PRT;	206 AA.
AC	Q91410;			
DT	01-NOV-1996 (TREMBLrel. 01, Created)			
DT	01-NOV-1996 (TREMBLrel. 01, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	PROGLUCAGON.			

GN PROGLUCAGON.
 OS Gallus gallus (Chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.
 ON NCBL_TaxID=9031;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=95295739; PubMed=7776976;
 RA Irwin D.M., Wong J.;
 RT "trout and chicken proglucagon: alternative splicing generates mRNA
 transcripts encoding glucagon-like peptide 2.";
 RL Mol. Endocrinol. 9:267-277(1995).
 DR EMBL; S78477; AAB34506.1; -
 DR HSSP; P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 3.
 DR PRINTS; PRO0275; GLUCAGON.
 DR SMART; SM00070; GLUCA; 3.
 DR PROSITE; PS00260; GLUCAGON; 3.
 SQ SEQUENCE 206 AA; 23875 MW; AB299E1B02FC6AA4 CRC64;

Query Match 91.7%; Score 132; DB 13; Length 206;
 Best Local Similarity 88.9%; Pred. No. 3.4e-12;
 Matches 24; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGGQAKEFIAMLV 27
 |||||:||||:|||||
 DB 118 HAEGTSDITSLYEGQAKEFIAMLV 144

RESULT 3
 ID 012956 PRELIMINARY; PRT; 204 AA.
 AC 012956: 012955;
 DT 01-JUL-1997 (TREMBLrel. 04, Created)
 DT 01-JUL-1997 (TREMBLrel. 04, last sequence update)
 DT 01-JUN-2001 (TREMBLrel. 17, last annotation update)
 DE GLUCAGON PRECURSOR.
 OS Heloderma suspectum (Gila monster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Lepidosauria; Squamata; Scleroglossa; Anguilliformia; Helodermatidae;
 OC Heloderma.
 ON NCBL_TaxID=8554;
 RN [1]
 RP SEQUENCE FROM N.A., ALTERNATIVE SPLICING, AND TISSUE SPECIFICITY.
 RC TISSUE=INTESTINE, AND PANCREAS;
 RX MEDLINE=97172477; PubMed=9020121;
 RA Chen Y.E., Drucker D.J.;
 RT "Tissue-specific expression of unique mRNAs that encode proglucagon-
 derived peptides or extendin 4 in the lizard.";
 RL J. Biol. Chem. 272:4108-4115(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOCEN AND LIPIDS, AND RAISES
 THE BLOOD SUGAR LEVEL (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; LPII (SHOWN HERE) AND LPI; ARE
 PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- TISSUE SPECIFICITY: ISOFORM LPII IS EXPRESSED IN BOTH PANCREAS AND
 INTESTINE. EXPRESSION OF ISOFORM LPI IS RESTRICTED TO THE
 PANCREAS. NEITHER ISOFORM IS DETECTED IN SALIVARY GLAND.
 CC -1- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
 RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR EMBL; U77612; AAB51129.1; -
 DR EMBL; U77611; AAB51128.1; -
 DR HSSP; P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam; PF00123; hormone2; 3.
 DR PRINTS; PRO0275; GLUCAGON.
 DR SMART; SM00070; GLUCA; 3.
 DR PROSITE; PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
 Alternative splicing.

FT SIGNAL 1 20 BY SIMILARITY.
 FT PEPTIDE 21 50 GRP (GLICENTINE RELATED POLYPEPTIDE).
 FT PEPTIDE 53 81 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 116 145 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 164 196 GLUCAGON-LIKE PEPTIDE 2.
 FT VARSPLIC 149 149 D -> E (IN ISOFORM LPI).
 FT VARSPLIC 150 204 MISSING (IN ISOFORM LPI).
 SQ SEQUENCE 204 AA; 23553 MW; B132E3FE46873E72 CRC64;

Query Match 87.5%; Score 126; DB 13; Length 204;
 Best Local Similarity 85.2%; Pred. No. 2.8e-11;
 Matches 23; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGGQAKEFIAMLV 27
 ||:|:||||:|||||
 DB 116 HAEGRTSDISLYEGQAKEFIAMLV 142

RESULT 4
 ID 042143 PRELIMINARY; PRT; 266 AA.
 AC 042143;
 DT 01-JAN-1998 (TREMBLrel. 05, Created)
 DT 01-JAN-1998 (TREMBLrel. 05, last sequence update)
 DT 01-JUN-2001 (TREMBLrel. 17, last annotation update)
 DE GLUCAGON I PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1A
 (GLP-1A); GLUCAGON-LIKE PEPTIDE 1B (GLP-1B); GLUCAGON-LIKE PEPTIDE 1C
 (GLP-1C); GLUCAGON-LIKE PEPTIDE 2 (GLP-2)].
 DE Xenopus laevis (African clawed frog).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipiloidea; Pipidae;
 OC Xenopodidae; Xenopus.
 ON NCBL_TaxID=8355;
 RN [1]
 RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
 RC TISSUE=PANCREAS;
 RX MEDLINE=97368292; PubMed=9223287;
 RA Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
 Wheeler M.B.;
 RT "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
 insulinotropic properties.";
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOCEN AND LIPIDS, AND RAISES
 THE BLOOD SUGAR LEVEL.
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS; 1 (SHOWN HERE) AND 2; ARE
 PRODUCED BY ALTERNATIVE SPLICING.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 DR EMBL; AF004432; AAB65660.1; -
 DR HSSP; P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam; PF00123; hormone2; 5.
 DR PRINTS; PRO0275; GLUCAGON.
 DR SMART; SM00070; GLUCA; 5.
 DR PROSITE; PS00260; GLUCAGON; 5.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 Multigene family; Alternative splicing.
 FT SIGNAL 1 2 POTENTIAL.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 97 133 GLUCAGON-LIKE PEPTIDE 1A.
 FT PEPTIDE 142 173 GLUCAGON-LIKE PEPTIDE 1B.
 FT PEPTIDE 180 211 GLUCAGON-LIKE PEPTIDE 1C.
 FT PEPTIDE 227 259 GLUCAGON-LIKE PEPTIDE 2.
 FT VARSPLIC 214 261 MISSING (IN ISOFORM 2).
 SQ SEQUENCE 266 AA; 30951 MW; 544F7BCC20A872C CRC64;

Query Match 79.2%; Score 114; DB 13; Length 266;
 Best Local Similarity 67.9%; Pred. No. 2.7e-09;
 Matches 19; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGGQAKEFIAMLV 28
 |||||:||||:|||||

FT PEPTIDE 2 49 GRPP (GLICENTINE RELATED POLYPEPTIDE);
 FT PEPTIDE 52 80 GLUCAGON.
 FT PEPTIDE 85 120 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 137 169 GLUCAGON-LIKE PEPTIDE 2.
 FT VARSPLIC 124 178 MISSING (IN PANCREATIC ISOFORM).
 SQ SEQUENCE 178 AA; 19998 MW; E89D7386CD91C66 CRC64;

Query Match 75.7%; Score 109; DB 13; Length 178;
 Best Local Similarity 69.2%; Pred. No. 9.6e-09;
 Matches 18; Conservative 7; Mismatches 1; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGOAKKEFIAMLV 26
 DB 90 HADGTYSVDVSYLGOAKKEFIAMLV 115

RESULT 8
 ID 042144 PRELIMINARY; PRT; 219 AA.
 AC 042144;
 DT 01-JAN-1998 (TREMblrel. 05, Last sequence update)
 DT 01-JUN-1998 (TREMblrel. 05, Last sequence update)
 DT 01-JUN-2001 (TREMblrel. 17, Last annotation update)
 DE GLUCAGON II PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1A
 DE (GLP-1A); GLUCAGON-LIKE PEPTIDE 1B (GLP-1B); GLUCAGON-LIKE PEPTIDE 1C
 DE (GLP-1C)].
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
 OC Xenopodidae; Xenopus.
 OX NCBI_TaxID=8355;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=PANCREAS;
 RX MEDLINE=97368292; PubMed=9223287;
 RA Irwin D.M., Sakkunatirah M., Wen Y., Brubaker P.L., Pederson R.A.,
 RA Wheeler M.B.;
 RT "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
 RT insulinotropic properties";
 RT Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOPEN AND LIPIDS, AND RAISES
 CC THE BLOOD SUGAR LEVEL.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC EMBL; AF004433; AAB65661.1; -.
 DR HSSP; P01274; IGCN.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 4.
 DR PRINTS; PRO0275; GLUCAGON.
 DR SMART; SM00070; GLUCA; 4.
 DR PROSITE; PS00260; GLUCAGON; 3.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 KW Multigene family.
 FT SIGNAL 1 20 POTENTIAL.
 FT PEPTIDE 53 81 GLUCAGON.
 FT PEPTIDE 97 133 GLUCAGON-LIKE PEPTIDE 1A.
 FT PEPTIDE 142 173 GLUCAGON-LIKE PEPTIDE 1B.
 FT PEPTIDE 180 211 GLUCAGON-LIKE PEPTIDE 1C.
 SQ SEQUENCE 219 AA; 25271 MW; ACC69233C36C60 CRC64;

Query Match 75.7%; Score 109; DB 13; Length 219;
 Best Local Similarity 66.7%; Pred. No. 1.2e-08;
 Matches 18; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGOAKKEFIAMLV 27
 DB 180 HAEGFTSDVSYLGOAKKEFIAMLV 206

RESULT 9
 ID 09PURL PRELIMINARY; PRT; 160 AA.

AC 09PURL; 09PRZ8; 09PRZ7;
 DT 01-MAY-2000 (TREMblrel. 13, Created)
 DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)
 DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
 DE GLUCAGON I PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE 1
 DE (GLP-1); GLUCAGON-LIKE PEPTIDE 2 (GLP-2)].
 OS Petromyzon marinus (Sea lamprey).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Hyperoartia;
 OC Petromyzontiformes; Petromyzontidae; Petromyzon.
 OX NCBI_TaxID=7757;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=INTESTINE;
 RX MEDLINE=20022986; PubMed=10555286;
 RA Irwin D.M., Huner O., Youson J.H.;
 RT "Lamprey proglucagon and the origin of glucagon-like peptides.";
 RT Mol. Biol. Evol. 16:1548-1557(1999).
 RN [2]
 RP SEQUENCE OF 43-71 AND 82-113.
 RC TISSUE=INTESTINE;
 RX MEDLINE=94010172; PubMed=8405897;
 RA Conlon J.M., Nielsen P.F., Youson J.H.;
 RT "Primary structures of glucagon and glucagon-like peptide isolated
 RT from the intestine of the parasitic phase lamprey Petromyzon
 RT marinus.";
 RT Gen. Comp. Endocrinol. 91:96-104(1993).
 CC -1- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOPEN AND LIPIDS, AND RAISES
 CC THE BLOOD SUGAR LEVEL.
 CC -1- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
 CC EMBL; AF159707; AAF09186.1; -.
 DR HSSP; P01275; IBOH.
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 2.
 DR PRINTS; PRO0275; GLUCAGON.
 DR SMART; SM00070; GLUCA; 2.
 DR PROSITE; PS00260; GLUCAGON; 2.
 KW Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
 KW Multigene family.
 FT SIGNAL 1 22 POTENTIAL.
 FT PEPTIDE 43 71 GLUCAGON.
 FT PEPTIDE 82 113 GLUCAGON-LIKE PEPTIDE 1.
 FT PEPTIDE 130 160 GLUCAGON-LIKE PEPTIDE 2.
 SQ SEQUENCE 160 AA; 18042 MW; 9A52C530D5A74072 CRC64;

Query Match 70.8%; Score 102; DB 13; Length 160;
 Best Local Similarity 53.6%; Pred. No. 1e-07;
 Matches 15; Conservative 11; Mismatches 2; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSYLGOAKKEFIAMLV 28
 DB 82 HADGTYSVDVSYLGOAKKEFIAMLV 109

RESULT 10
 ID 09DDE6 PRELIMINARY; PRT; 121 AA.
 AC 09DDE6;
 DT 01-MAR-2001 (TREMblrel. 16, Created)
 DT 01-MAR-2001 (TREMblrel. 16, Last sequence update)
 DT 01-DEC-2001 (TREMblrel. 19, Last annotation update)
 DE GLUCAGON POLYPEPTIDE.
 GN GCG OR GLU.
 OS Brachydanio rerio (Zebrafish) (Zebra danio).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Danio.
 OX NCBI_TaxID=7955;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=99425190; PubMed=10495291;
 RA Argenton F., Zecchin E., Bortolussi M.;
 RT "Early appearance of pancreatic hormone-expressing cells in the

RT zebrafish embryo."
RL Mech. Dev. 87:217-221(1999).
DR EMBL: AJ133697; CAC20108.1; -.
DR HSSP: P01274; IGCN.
DR ZFIN: ZDB-GENE-010219-1; gsc9.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 1.
DR Polypeptide.
KW CHAIN 49 79 GLUCAGON-LIKE PEPTIDE 1.
FT CHAIN 88 121 GLUCAGON-LIKE PEPTIDE 1.
SQ SEQUENCE 121 AA: 13537 MW: A85385F690DA180F CRC64;

Query Match 68.1%; Score 98; DB 13; Length 121;
Best Local Similarity 73.1%; Pred. No. 3e-07;
Matches 19; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 26
DB 88 HAEGFTSDVSSYLEGQAAKEFLAMLV 113

RESULT 11
O9PRW9 PRELIMINARY; PRT; 62 AA.
AC O9PRW9; O9PRX0; O9PRW8;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE GLUCAGON PRECURSOR [CONTAINS: GLUCAGON-29; GLUCAGON-33; GLUCAGON-LIKE PEPTIDE] (FRAGMENTS).
OS Scyliorhinus canicula (Spotted dogfish) (Spotted catshark).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Chondrichthyes;
OC Elasmobranchii; Galeomorphii; Galeoidea; Carcharhiniformes;
OC Scyliorhinidae; Scyliorhinus.
OX NCBI_Taxid=7830;
RN [1]
RP SEQUENCE.
RC TISSUE-PANCREAS;
RX MEDLINE=94286411; PubMed=8015974;
RA Conlon J.M., Hazon N., Thim L.;
RT "Primary structures of peptides derived from proglucagon isolated from the pancreas of the elasmobranch fish, Scyliorhinus canicula.";
RL Peptides 15:163-167(1994).
CC -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.
CC -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.
KW Glucagon family; Hormone.
FT PEPTIDE 1 29 GLUCAGON-29.
FT PEPTIDE 1 33 GLUCAGON-33.
FT NON-CONS 33 34 GLUCAGON-LIKE PEPTIDE.
FT PEPTIDE 34 62 GLUCAGON-LIKE PEPTIDE.
SQ SEQUENCE 62 AA: 7270 MW: C5FF487C12C69CD1 CRC64;

Query Match 66.0%; Score 95; DB 13; Length 62;
Best Local Similarity 55.6%; Pred. No. 3.9e-07;
Matches 15; Conservative 7; Mismatches 5; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 27
DB 1 HSEGTFTSDYSKYMDNRRAKDFVQWLM 27

RESULT 12
O9GCA3 PRELIMINARY; PRT; 96 AA.
AC O9GCA3;
DT 01-MAR-2001 (TREMBLrel. 16, Created)
DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE PROGLUCAGON (FRAGMENT).
OS Ambloplites rupestris.
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidae;
OC Centrarchidae; Ambloplites.
OX NCBI_Taxid=109573;
RN [1]
RP SEQUENCE FROM N.A.
RA Al-Mahrouk A.A., Irwin D.M., Youson J.H.;
RT "Rock Bass Proglucagon."
RL Submitted (SEP-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF190499; AAG16778.1; -.
DR HSSP: P01274; IGCN.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; UNKNOWN_1.
FT NON-TER 1 1
FT CHAIN 1 >29 GLUCAGON.
FT CHAIN 39 >70 GLUCAGON-LIKE PEPTIDE 1.
FT CHAIN 86 >96 GLUCAGON-LIKE PEPTIDE 2.
FT NON-TER 96 96
SQ SEQUENCE 96 AA: 11225 MW: 6435033EBDDC00CE CRC64;

Query Match 61.1%; Score 88; DB 13; Length 96;
Best Local Similarity 51.9%; Pred. No. 7.7e-06;
Matches 14; Conservative 9; Mismatches 4; Indels 0; Gaps 0;

OY 1 HAEGFTSDVSSYLEGQAAKEFLAMLV 27
DB 1 HSGGFTNDYNTYLEDRQAQDFIRWLM 27

RESULT 13
O9PDR0 PRELIMINARY; PRT; 120 AA.
AC O9PDR0;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE GLUCAGON II PRECURSOR [CONTAINS: GLUCAGON; GLUCAGON-LIKE PEPTIDE (GLP)].
OS Petromyzon marinus (Sea lamprey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC Petromyzontiformes; Petromyzontidae; Petromyzon.
OX NCBI_Taxid=7757;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-INTESTINE;
RX MEDLINE=20022986; PubMed=10555286;
RA Irwin D.M., Huner O., Youson J.H.;
RT "Lamprey proglucagon and the origin of glucagon-like peptides.";
RL Mol. Biol. Evol. 16:1548-1557(1999).
CC -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES THE BLOOD SUGAR LEVEL.
CC -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR EMBL: AF159708; AAF09187.1; -.
DR HSSP: P01275; 1BH0.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 2.
DR PRINTS: PR00275; GLUCAGON.
DR SMART: SM00070; GLUCA; 2.
DR PROSITE: PS00260; GLUCAGON; 2.

KM	Glucagon family; Hormone; Signal; Cleavage on pair of basic residues	
KW	Multigene family.	
FT	SIGNAL	1
FT	PEPTIDE	44
FT	PEPTIDE	89
SO	SEQUENCE	120 AA; 13397 MW; FBDE667B96E19808 CRC64;

THIS PAGE BLANK (USPTO)